

حمل الآن

مجانا وحصريا

امتحانات رقم (1)

الترم الثاني



Some Schools Examinations



2025

on Algebra and Statistics

1

Cairo Governorate



Nasr City Educational Directorate (East)
Al Manhal Private School

Answer the following questions :

1 Choose the correct answer :

1 If $5^x = 125$, then $x = \dots\dots\dots$

- (a) 3 (b) -3 (c) 5 (d) -5

2 The expression : $x^2 + kx + 36$ is a perfect square, when $k = \dots\dots\dots$

- (a) ± 6 (b) ± 8 (c) ± 12 (d) ± 18

3 $\frac{5^{-2} \times \sqrt{5}}{5\sqrt{5}} = \dots\dots\dots$

- (a) $\frac{1}{25}$ (b) 25 (c) 125 (d) $\frac{1}{125}$

4 A regular die is thrown once and observed the upper face, then the probability of appearing a number divisible by 3 is $\dots\dots\dots$

- (a) $\frac{1}{4}$ (b) $\frac{1}{3}$ (c) $\frac{1}{2}$ (d) $\frac{3}{4}$

5 The S.S. of the equation : $x^2 - x = 0$ is $\dots\dots\dots$ where $x \in \mathbb{R}$

- (a) $\{0\}$ (b) $\{0, 1\}$ (c) \emptyset (d) $\{1\}$

2 Complete each of the following :

1 If $2^{x+3} = 1$, then $x = \dots\dots\dots$

2 If $x + y = 4$, $x - y = 2$, then $x^2 - y^2 = \dots\dots\dots$

3 The probability of the impossible event is $\dots\dots\dots$

4 The solution set of the equation : $x^2 + 1 = 0$ in \mathbb{R} is $\dots\dots\dots$

3 Factorize each of the following expressions :

1 $x^2 + 8x + 15$

2 $x^3 + 125$

3 $ax - 7a + 3x - 21$

4 $2x^2 + 7x + 3$

4 [a] Simplify to the simplest form :

$$\frac{4^n \times 6^{2n}}{2^{4n} \times 3^{2n}}$$

[b] Find the S.S. of the equation :

$$x^2 - 8x + 12 = 0 \quad \text{where } x \in \mathbb{R}$$

- 5 [a]** A bag contains 15 identical balls, 3 of them are white and 9 of them are black, a ball is drawn randomly.

Find the probability that the drawn ball is :

1 Black.

2 Neither white nor black.

- [b]** If $3^x = 27$, $4^{x+y} = 1$
 , find : the values of x and y

2

Cairo Governorate



**Maadi Directorate
Math. Guidance**

Answer the following questions :

- 1** Choose the correct answer :

- 1** If $x + y = 6$, $x - y = 2$, then $x^2 - y^2 = \dots\dots\dots$

(a) 3

(b) 4

(c) 8

(d) 12

- 2** If $x = \frac{\sqrt{3}}{3\sqrt{2}}$, then $x^{-1} = \dots\dots\dots$

(a) $\sqrt{6}$

(b) $\frac{\sqrt{6}}{6}$

(c) $6\sqrt{6}$

(d) $2\sqrt{6}$

- 3** If $4x^2 + 12x + c$ is a perfect square , then $c = \dots\dots\dots$

(a) 3

(b) 6

(c) 9

(d) 16

- 4** If $(x - 3)^0 = 1$, then $x \neq \dots\dots\dots$

(a) 0

(b) 1

(c) -3

(d) 3

- 5** If a fair die is thrown once, then the probability of appearing a prime number on the upper face is $\dots\dots\dots$

(a) $\frac{1}{2}$

(b) $\frac{1}{3}$

(c) $\frac{2}{3}$

(d) $\frac{1}{6}$

- 2** Complete each of the following :

- 1** The solution set in \mathbb{Q} of the equation : $(x - 2)(x - 5) = 0$ is $\dots\dots\dots$

- 2** If the probability that a student success is 0.7 , then the probability of his failure is $\dots\dots\dots$

- 3** $x^6 \div x^2 = \dots\dots\dots$, $x \neq 0$

- 4** If $x + 5 = 11$, then $2x = \dots\dots\dots$

- 3 [a]** Factorize each of the following :

1 $4x^2 - 9$

2 $2x^2 + x - 3$

- [b]** If $2^{2x-1} = 8$, then find : the value of x

4 [a] Factorize each of the following :

1 $x^3 + 8$

2 $ab + 2bc + 3a + 6c$

[b] Find in the simplest form : $\frac{20^{x+1} \times 5^x}{10^{2x+1}}$

5 [a] Find the solution set in \mathbb{R} of the equation :

$x^2 - 5x + 6 = 0$

[b] In a box , there are 5 white balls, 4 black balls and 6 red balls. One ball is drawn randomly.

Find the probability that the drawn ball is :

1 Black ball.

2 Not white ball.

3

Giza Governorate



El-Agouza Directorate
El-Manar Islamic Language School

Answer the following questions :

1 Choose the correct answer :

1 The S.S. of the equation : $x^2 + 4 = 0$ in \mathbb{R} is

(a) $\{2\}$

(b) $\{-2\}$

(c) \emptyset

(d) $\{2, -2\}$

2 $4^3 + 4^3 + 4^3 + 4^3 = \dots\dots\dots$

(a) 4^3

(b) 4^4

(c) 4^{12}

(d) 4^{81}

3 If $\frac{a}{b} = 1$, then $4a - 4b = \dots\dots\dots$

(a) 8

(b) 4

(c) 1

(d) 0

4 If $6^x = 7$, then $6^{x+1} = \dots\dots\dots$

(a) 8

(b) 13

(c) 36

(d) 42

5 If $x + y = 4$, $x - y = 3$, then $x^2 - y^2 = \dots\dots\dots$

(a) 7

(b) 12

(c) 4

(d) 3

2 Complete the following :

1 If $x^3 y^{-3} = 8$, then $\frac{y}{x} = \dots\dots\dots$

2 The additive inverse of $(-3)^3$ is

3 If $3^x = 81$, then $x = \dots\dots\dots$

4 If $\left(\frac{5}{3}\right)^x = \left(\frac{3}{5}\right)^2$, then $x = \dots\dots\dots$

3 [a] Factorize each of the following :

1 $x^2 + 8x + 15$

2 $4x^2 - 9$

[b] Simplify : $\frac{9^n \times 3^{n+2}}{27^n}$

4 [a] Factorize each of the following :

1 $a^2 - 7a + 3x - 21$

2 $x^3 + 8$

[b] Find the S.S. of the equation : $x^2 + x - 6 = 0$ in \mathbb{R}

5 [a] If $(x + 4)$ is one factor of the expression : $x^2 - 3x - 28$, then find the other factor.

[b] A box contains 7 red balls , 3 green balls and 5 blue balls. One ball is drawn at random.

Find the probability that this ball is :

1 Red.

2 Blue.

3 Not green.

4

Giza Governorate



Abu El Nomros Directorate

Answer the following questions :

1 Choose the correct answer :

1 If the age of Omar now is x years , then his age after 3 years will be years.

(a) $x + 3$

(b) $3x$

(c) x^3

(d) 3^x

2 Half of the number 2^8 is

(a) 2^4

(b) 2^7

(c) 4

(d) - 4

3 If $6^x = 7$, then $6^{x+1} = \dots\dots\dots$

(a) 8

(b) 13

(c) 36

(d) 42

4 If $x^2 + kx + 25$ is a perfect square trinomial , then $k = \dots\dots\dots$

(a) 10

(b) ± 10

(c) ± 5

(d) 5

5 If $y - x = -5$ and $x + y = 7$, then $x^2 - y^2 = \dots\dots\dots$

(a) 12

(b) - 35

(c) - 12

(d) 35

2 Complete each of the following :

1 The probability of any event $A \in [\dots\dots\dots , \dots\dots\dots]$

2 The S.S. of the equation : $x^3 - 1 = 7$ in \mathbb{R} is

3 If $2^{x-1} = 1$, then $x = \dots\dots\dots$

4 If $(x + 1)$ is a factor of the expression : $5x^2 - 2x - 7$, then the other factor is

3 Factorize each of the following expressions :

1 $9x^2 - 16$

2 $2x^2 + 7x - 4$

3 $x^3 - 125$

4 $ax - 7a + 3x - 21$

4 [a] Simplify : $\frac{4^n \times 6^{2n}}{2^{5n} \times 3^{2n}}$, then find the value of the result at $n = -2$ **[b] Find in \mathbb{R} the solution set of the equation : $x^2 - 8x + 12 = 0$** **5 [a] If $3^{x+1} = 81$, and $4^{x+y} = 64$, find the values of x and y** **[b] A bag contains 10 identical cards numbered from 1 to 10. A card is drawn at random from the bag , calculate the probability of each of the following :****1** The drawn card carries a prime number.**2** The drawn card carries a number divisible by 3**5****Alexandria Governorate****East educational Zone
Mathematics Directing****Answer the following questions :****1 Choose the correct answer :****1** If $x^2 + ax + 36$ is a perfect square, then $a = \dots\dots\dots$

(a) ± 6

(b) ± 8

(c) ± 12

(d) ± 18

2 A class has 15 boys and 20 girls, the probability that the chosen pupil is a boy = $\dots\dots\dots$

(a) $\frac{2}{7}$

(b) $\frac{3}{7}$

(c) $\frac{4}{7}$

(d) $\frac{5}{7}$

3 $5^{-2} = \dots\dots\dots$

(a) -10

(b) -25

(c) $\frac{1}{25}$

(d) 25

4 $4 \times 5 - 15 \div 3 = \dots\dots\dots$

(a) 15

(b) 8

(c) 20

(d) 25

5 The solution set of the equation : $x^2 - 9 = 0$ is $\dots\dots\dots$, where $x \in \mathbb{R}$

(a) $\{3\}$

(b) $\{-3, 3\}$

(c) $\{9\}$

(d) \emptyset

2 Complete the following :**1** The simplest form of : $2^{-1} \times (\sqrt{2})^2 + 2$ is $\dots\dots\dots$ **2** If x is a real number, then its three times its square = $\dots\dots\dots$ **3** If $(x+2)(x+3) = x^2 + ax + 6$, then $a = \dots\dots\dots$ **4** The probability of a certain event is $\dots\dots\dots$

3 Factorize each of the following :

1 $x^2 - 8x + 15$

2 $ax - bx + ay - by$

3 $x^3 + 27$

4 $49x^2 - 25$

4 [a] Find the solution set of the equation : $x^2 + 7x = 18$, where $x \in \mathbb{R}$

[b] Find the value of x if : $(\sqrt{3})^{x-3} = 9$

5 [a] Find in the simplest form : $\frac{(9)^x \times (25)^x}{(15)^{2x}}$ **[b] A box contains 12 red balls, 18 white balls and 20 blue balls. If a ball selected randomly, Find the probability of getting :****1** A yellow ball.**2** A red or blue ball.**6****El-Kalyoubia Governorate****Maths Supervision
Official Language Schools***Answer the following questions :***1 Choose the correct answer from those given :**

1 If $2^x = 5$, then $2^{x+1} = \dots\dots\dots$

(a) 3

(b) 7

(c) 10

(d) 12

2 $\sqrt{25 \times 9} = 5 + \dots\dots\dots$

(a) 3

(b) 8

(c) 10

(d) 12

3 If $x^2 + 14x + k$ is perfect square, then $k = \dots\dots\dots$

(a) 2

(b) 7

(c) 14

(d) 49

4 If $x^2 + y^2 = 10$, $xy = 2$, then $(x - y)^2 = \dots\dots\dots$

(a) 6

(b) ± 6

(c) - 6

(d) 12

5 The solution set of the equation : $x^2 + x = 0$ in \mathbb{R} is $\dots\dots\dots$

(a) $\{0\}$ (b) \emptyset (c) $\{0, -1\}$ (d) $\{0, 1, -1\}$ **2 Complete the following :****1** The probability of certain event is $\dots\dots\dots$

2 $3y^3 + 3 = 3(y + \dots\dots\dots)(y^2 - \dots\dots\dots + 1)$

3 If $5^{x+3} = 6^{x+3}$, then $x = \dots\dots\dots$

4 If x is the additive identity element and y is the multiplicative identity element, then $2^y + 3^x = \dots\dots\dots$

3 [a] Factorize each of the following :

1 $25x^2 - 64$

2 $2x^2 - x - 15$

3 $xy + 5y + 7x + 35$

[b] Simplify to the simplest form : $\frac{4^{x+1} \times 3^{2x}}{6^{2x}}$

4 [a] Use the factorization to find the value of : $(99)^2 + 2 \times 99 + 1$

[b] If $3^{x-2} = \frac{1}{27}$, then find the value of x

5 [a] Find the solution set of the equation in \mathbb{R} : $x^2 + 4x = 12$

[b] A box contains 12 identical balls numbered from 1 to 12, a ball is drawn randomly, then find the probability that the drawn ball carries :

1 A prime number.

2 A number divisible by 3

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El-Monofia Governorate



**Tala Educational Administration
Mathematics Supervision**

Answer the following questions : (Calculator is allowed)

1 Choose the correct answer :

1 $\mathbb{Z}_+ \cap \mathbb{N} = \dots\dots\dots$

(a) \mathbb{Z}_+

(b) \mathbb{N}

(c) $\{0\}$

(d) \mathbb{Z}_-

2 If $x^2 + 10x + k$ is a perfect square, then $k = \dots\dots\dots$

(a) 10

(b) 25

(c) 40

(d) -25

3 If $(x-2)^0 = 1$, then $x \in \dots\dots\dots$

(a) $\{2\}$

(b) $\mathbb{R} - \{-2\}$

(c) \mathbb{R}

(d) $\mathbb{R} - \{2\}$

4 If $6^x = 11$, then $6^{x+1} = \dots\dots\dots$

(a) 12

(b) 22

(c) 66

(d) 50

5 The solution set of the equation : $\frac{4}{x} = \frac{x}{9}$ in \mathbb{R} is $\dots\dots\dots$

(a) $\{4, 9\}$

(b) $\{6, -6\}$

(c) 40

(d) 50

2 Complete the following :

1 If $x^2 - y^2 = 15$, $x + y = 5$, then $x - y = \dots\dots\dots$

2 If half of the number $(2)^4$ equals $(2)^{x+2}$, then $x = \dots\dots\dots$

3 If $x^3 y^{-3} = 8$, then $y^2 x^{-2} = \dots\dots\dots$

4 If the probability of a student passing the exam is 0.65, then the probability of failure = $\dots\dots\dots$

3 Factorize each of the following completely :

1 $15x^2 + 25x - 10$

2 $4x^2 - 9$

3 $x^3 + 125$

4 $x^2 - 8x + 16$

5 $ax - cy - cx + ay$

4 [a] Find in the simplest form : $\frac{(9)^x \times (25)^{x+1}}{(15)^{2x}}$ **[b]** A rectangle whose length is greater than its width by 5 cm. If its area is 36 cm^2 , Find its dimension.**5 [a] If $\left(\sqrt{\frac{3}{2}}\right)^x = \frac{4}{9}$, find the value of $\left(\frac{3}{2}\right)^{x+1}$** **[b]** A box contains a number of similar balls, 7 black balls, 8 red balls and 5 blue balls. A ball is drawn randomly. Find the probability of the drawn ball is :**1** Blue.**2** Black.**3** Not blue.**8****El-Dakahlia Governorate****Maths Supervision****Answer the following questions :****1 Choose the correct answer from the given ones :**

1 $4^3 + 4^3 + 4^3 + 4^3 = \dots\dots\dots$

(a) 4^{81}

(b) 4^{12}

(c) 16^3

(d) 4^4

2 If $a + b = 3$, $x - y = 5$, then $a(x - y) + b(x - y) = \dots\dots\dots$

(a) 8

(b) 15

(c) -8

(d) -15

3 If $3^x = 5$, then $27^x = \dots\dots\dots$

(a) 9

(b) 25

(c) 125

(d) 729

4 If the age of Omar now is x years, then his age after 3 years is $\dots\dots\dots$ years.

(a) $3x$

(b) $x + 3$

(c) $x - 3$

(d) $\frac{x}{3}$

5 If $x^2 + kx + 4$ is a perfect square trinomial, then $k = \dots\dots\dots$

(a) ± 2

(b) 1

(c) -8

(d) ± 4

2 Complete each of the following with suitable answer :

1 $1 - \frac{1}{4} = \dots\dots\dots \%$

2 The S.S. in \mathbb{R} of the equation : $x^2 + 9 = 0$ is $\dots\dots\dots$

3 If $(5)^{x-3} = 1$, then the value of $x = \dots\dots\dots$

4 A regular die is thrown once and observed the upper face, then the probability of appearance a number 3 is $\dots\dots\dots$

3 Factorize each of the following perfectly :

1 $16x^2 - 9$

2 $x^2 + 7x + 12$

3 $5x^2 - 3x - 2$

4 $3x^3 + 24$

5 $a^2 - 6ab + 9b^2$

4 [a] Find in \mathbb{R} the solution set of the equation : $x^2 - 2x - 15 = 0$

[b] If $\frac{4^x \times 9^x}{36^x} = 64$, find the value of x

5 [a] Find the value of x where : $2^{x+1} = 32$ **[b]** A basket contains identical balls numbered from 1 to 10, a ball is drawn randomly, find the probability of drawing a ball carrying :**1** An even number.**2** A number less than 4**9****Suez Governorate****Directory of Education
Math Supervision****Answer the following questions :****1 Choose the correct answer :**

1 If $(x - 5)^{\text{zero}} = 1$, then $x \in \dots\dots\dots$

(a) $\{5\}$

(b) $\mathbb{R} - \{5\}$

(c) $\mathbb{R} - \{1, 5\}$

(d) \mathbb{R}

2 If $a^2 - b^2 = 15$, $a + b = 5$, then $a - b = \dots\dots\dots$

(a) 10

(b) 5

(c) 3

(d) 20

3 If $3^x = 4$, then $3^{-x} = \dots\dots\dots$

(a) -3

(b) 4

(c) $\frac{1}{4}$

(d) $\frac{1}{3}$

4 If $5^x = 4$, then $5^{x+1} = \dots\dots\dots$

(a) 25

(b) 9

(c) 20

(d) 1

5 If $x^2 + 6x + k$ is perfect square, then $x = \dots\dots\dots$

(a) 6

(b) 9

(c) -9

(d) -6

2 Complete the following :

1 For every event A , $P(A) \in [\dots\dots\dots, \dots\dots\dots]$

2 $5x^2 - 2x - 7 = (5x - \dots\dots\dots)(x + \dots\dots\dots)$

3 The S.S. in \mathbb{Q} : $x^2(x - 5) = 0$ is $\dots\dots\dots$

4 The probability of the certain event equals $\dots\dots\dots$

3 Factorize :

1 $x^2 - 25$

2 $x^3 - 8$

3 $x^2 + 5x - 6$

4 $7x - 28 + ax - 4a$

4 [a] Simplify to the simplest form : $\frac{2^x \times 4^{x+1}}{8^x}$

[b] Find the S.S. of the equation : $x^2 - 7x + 10 = 0$ where $x \in \mathbb{Q}$

5 [a] If $3^{n-2} = 9$, find the value of n

[b] A card is selected randomly from a set of similar cards numbered from 1 to 15

Find the probability of getting a card that carrying :

1 A number divisible by 5**2** A prime number.**3** A multiple of number 4**10 El-Beheira Governorate**Kafr El-Dawar Educationl Zone
Private Education Administration*Answer the following questions :***1 Choose the correct answer :**

1 If $kx^2 + 24x + 9$ is a perfect square, then $k = \dots\dots\dots$

(a) 3

(b) 4

(c) 9

(d) 16

2 If $x^3 - y^3 = 24$, $x^2 + xy + y^2 = 6$, then $3(x - y) = \dots\dots\dots$

(a) 18

(b) 12

(c) 4

(d) 2

3 If $5^x = 4$, then $5^{x-1} = \dots\dots\dots$

(a) 8

(b) 1.25

(c) 0.8

(d) 20

4 The S.S. of the equation : $x^3 - 36x = 0$ in \mathbb{R} is $\dots\dots\dots$

(a) $\{6, -6\}$ (b) \emptyset (c) $\{0\}$ (d) $\{0, 6, -6\}$

5 If $x^3 y^{-3} = 64$, then $\frac{y}{x} = \dots\dots\dots$

(a) $\frac{1}{8}$

(b) 8

(c) $\frac{1}{4}$

(d) 4

2 Complete the following :**1** In the experiment of throwing a fair die, the probability of appearing an odd prime number is $\dots\dots\dots$ **2** The degree of the algebraic term $5x^3y$ is $\dots\dots\dots$

3 If $4^{x-27} = \frac{1}{16}$, then $\sqrt{x} = \dots\dots\dots$

4 If $x^2 + a = (x + 7)(x - 7)$, then $a = \dots\dots\dots$

3 Factorize perfectly :

1 $16x^3 + 54$

2 $xy - 7y + 3x - 21$

3 $x^2 - 10x - 24$

4 $2x^2 + x - 6$

- 4 [a]** A real positive number , if its double is added to its square the result is 35
Find the number.

[b] If $\frac{6^{2n} \times 4^n}{2^{n+1} \times 3^{2n}} = 32$, then find the value of n

- 5 [a]** If $x = 3$, $y = \sqrt{2}$, find in the simplest form the value of :

1 $x^2 y^4$

2 $x^2 + y^4$

- [b]** A box contains 7 red balls , 8 green balls and 5 yellow balls. One ball is drawn randomly. Find the probability of getting :

1 A green ball.

2 A ball not yellow.

3 A red ball.

4 A blue ball.

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El-Menia Governorate



Malawi Educational Directorate

Answer the following questions :

1 Choose the correct answer from those given :

1 If $x + y = 4$, $x^2 - xy + y^2 = 5$, then $x^3 + y^3 = \dots\dots\dots$

(a) $\frac{5}{4}$

(b) 20

(c) 9

(d) 10

2 $x^3 y^{-3} = 8$, then $\frac{x}{y} = \dots\dots\dots$

(a) 8

(b) 2

(c) 5

(d) 3

3 $3^x + 3^x + 3^x = 1$, then $x = \dots\dots\dots$

(a) 1

(b) -1

(c) 0

(d) 3

4 If $\frac{a}{b} = 1$, then $2a - 2b = \dots\dots\dots$

(a) 5

(b) 3

(c) 1

(d) 0

- 5** Which of the following may be the probability of an event ?

(a) 1.25

(b) -0.3

(c) 215 %

(d) 23 %

2 Complete the following :

1 $3^x = 2$, then $3^{x+1} = \dots\dots\dots$

2 $\sqrt{25 - 4^2} = \dots\dots\dots$

3 The S.S. of the equation : $x^2 + 25 = 0$ in \mathbb{R} is $\dots\dots\dots$

4 If the expression : $x^2 + kx + 36$ is a perfect square , then $k = \dots\dots\dots$

3 [a] Factorize the following :

1 $x^3 + 8$

2 $x^4 + 64y^4$

[b] Find in \mathbb{R} the S.S. of the equation : $3x^2 + 10x + 8 = 0$

4 [a] Simplify : $\frac{4^{x+1} \times 9^{2-x}}{6^{2x}}$, then find the numerical value at $x = 1$

[b] $3^{x-2} = 81$ Find the value of x

5 [a] Factorize the following :

1 $x^2 + 14x + 49$

2 $a^2x - 7a + 3x - 21$

[b] A box contains 2 red balls, 3 white balls and 5 blue balls. A ball is drawn randomly.
Find the probability of getting :

1 A white ball.

2 Non red ball.

3 A yellow ball.

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Aswan Governorate



The Educational Directorate

Answer the following questions : (Calculator is allowed)

1 Choose the correct answer :

1 If $\left(\frac{3}{2}\right)^x = \frac{8}{27}$, then $x = \dots\dots\dots$

(a) -3

(b) -2

(c) 2

(d) 3

2 $2^3 \times 2^3 \times 2^3 \times 2^3 = \dots\dots\dots$

(a) 2^4

(b) 2^5

(c) 2^7

(d) 2^{12}

3 If the following expression : $9x^2 + mx + 16$ is a perfect square , then $m = \dots\dots\dots$

(a) 12

(b) 24

(c) 25

(d) 26

4 The fifth of 5^{10} is equal to $\dots\dots\dots$

(a) 5^2

(b) 5^4

(c) 5^9

(d) 5^{11}

5 A club has 5 doors numbered from 1 to 5 , then the probability of a person can enter from the door number 3 is equal to $\dots\dots\dots$

(a) $\frac{1}{5}$

(b) $\frac{2}{5}$

(c) $\frac{3}{5}$

(d) $\frac{4}{5}$

2 Complete each of the following :

1 The additive inverse of the number $\frac{3}{5}$ is $\dots\dots\dots$

2 If the age of a man now is (x) years old , then his age since 5 years ago is $\dots\dots\dots$ years

3 If $x + y = 3$, $x^2 - y^2 = 6$, then $y - x = \dots\dots\dots$

4 If $6^x = 11$, then $6^{x+1} = \dots\dots\dots$

3 [a] Factorize each of the following :

1 $x^2 - 25$

2 $3x^2 + 7x - 6$

[b] Prove that : $\frac{4^{x+1} \times 9^x}{6^{2x}} = 4$

4 [a] Simplify to the simplest form : $\frac{(\sqrt{3})^5 \times (\sqrt{3})^3}{(\sqrt{3})^4}$

[b] Find the solution set of the following equation in \mathbb{R} : $x^2 - x = 12$

5 [a] Factorize each of the following :

1 $x^3 + 125$

2 $x(y - z) + l(y - z)$

[b] A class of 30 students 10 students succeeded in mathematic , 20 students succeeded in science , if one of the students is chosen randomly , **then find the probability that the chosen student is :**

1 Succeeded in mathematic.

2 Succeeded in science.

3 Failed in science.

Answers of the schools examinations on Algebra and Statistics

1 Cairo

1 1 (a) 2 (c) 3 (d)

4 (b) 5 (b)

2 1 -3 2 8 3 zero 4 \emptyset

3

1 $(X+3)(X+5)$

2 $(X+5)(X^2-5X+25)$

3 $a(X-7)+3(X-7)=(X-7)(a+3)$

4 $(2X+1)(X+3)$

4

$$[a] \frac{(2^2)^n \times (2 \times 3)^{2n}}{2^{4n} \times 3^{2n}} = \frac{2^{2n} \times 2^{2n} \times 3^{2n}}{2^{4n} \times 3^{2n}} = 2^{2n+2n-4n} = 2^0 = 1$$

[b] $\because X^2 - 8X + 12 = 0 \quad \therefore (X-2)(X-6) = 0$
 $\therefore X = 2 \text{ or } X = 6 \quad \therefore \text{The S.S.} = \{2, 6\}$

5

[a] 1 The probability of the drawn ball is black
 $= \frac{9}{15} = \frac{3}{5}$

2 The number of the remaining balls
 $= 15 - (3 + 9) = 3$ balls

The probability of the drawn ball neither
 white nor black $= \frac{3}{15} = \frac{1}{5}$

[b] $\because 3^X = 3^3 \quad \therefore X = 3$
 $\therefore 4^{X+y} = 4^0 \quad \therefore X+y = 0$
 $\therefore 3+y = 0 \quad \therefore y = -3$

2 Cairo

1 1 (d) 2 (a) 3 (c)

4 (d) 5 (a)

2 1 $\{2, 5\}$ 2 0.3 3 X^4 4 12

3

[a] 1 $(2X-3)(2X+3)$

2 $(2X+3)(X-1)$

[b] $\because 2^{2X-1} = 8 \quad \therefore 2^{2X-1} = 2^3$
 $\therefore 2X-1 = 3 \quad \therefore 2X = 4$
 $\therefore X = 2$

4

[a] 1 $(X+2)(X^2-2X+4)$

2 $a(b+3)+2c(b+3)=(b+3)(a+2c)$

[b] $\frac{(4 \times 5)^{X+1} \times 5^X}{(2 \times 5)^{2X+1}} = \frac{(2^2)^{X+1} \times 5^{X+1} \times 5^X}{2^{2X+1} \times 5^{2X+1}}$
 $= \frac{2^{2X+2} \times 5^{2X+1}}{2^{2X+1} \times 5^{2X+1}} = 2^{2X+2-2X-1} = 2$

5

[a] $\because X^2 - 5X + 6 = 0$
 $\therefore (X-2)(X-3) = 0 \quad \therefore X = 2 \text{ or } X = 3$
 $\therefore \text{The S.S.} = \{2, 3\}$

[b] 1 The probability that the drawn ball is black
 $\text{ball} = \frac{4}{15}$

2 The probability that the drawn ball is not
 white ball $= \frac{4+6}{15} = \frac{10}{15} = \frac{2}{3}$

3 Giza

1 1 (c) 2 (b) 3 (d)

4 (d) 5 (b)

2 1 $\frac{1}{2}$ 2 27 3 4 4 -2

3

[a] 1 $(X+3)(X+5)$ 2 $(2X-3)(2X+3)$

[b] $\frac{(3^2)^n \times 3^{n+2}}{(3^3)^n} = \frac{3^{2n} \times 3^{n+2}}{3^{3n}} = 3^{2n+n+2-3n} = 3^2 = 9$

4

[a] 1 $a(X-7)+3(X-7)=(X-7)(a+3)$

2 $(X+2)(X^2-2X+4)$

Answers of Algebra and Statistics

[b] $\therefore x^2 + x - 6 = 0$

$\therefore (x+3)(x-2) = 0 \quad \therefore x = -3 \text{ or } x = 2$

$\therefore \text{The S.S.} = \{-3, 2\}$

5

[a] $\therefore x^2 - 3x - 28 = (x-7)(x+4)$

$\therefore \text{The other factor} = x - 7$

[b] [1] The probability of the drawn ball is red = $\frac{7}{15}$

[2] The probability of the drawn ball is blue

$= \frac{5}{15} = \frac{1}{3}$

[3] The probability of the drawn ball is not green

$= \frac{7+5}{15} = \frac{12}{15} = \frac{4}{5}$

4

Giza

[1] [1] (a)

[2] (b)

[3] (d)

[4] (b)

[5] (d)

[2] [1] 0, 1

[2] {2}

[3] 1

[4] $5x - 7$

3

[1] $(3x-4)(3x+4)$

[2] $(2x-1)(x+4)$

[3] $(x-5)(x^2+5x+25)$

[4] $a(x-7)+3(x-7)=(x-7)(a+3)$

4

[a] $\frac{(2^3)^n \times (2 \times 3)^{2n}}{2^{5n} \times 3^{2n}} = \frac{2^{2n} \times 2^{2n} \times 3^{2n}}{2^{5n} \times 3^{2n}}$

$= 2^{2n+2n-5n} = 2^{-n}$

At $n = -2$

$\therefore 2^{-n} = 2^{-(-2)} = 2^2 = 4$

[b] $\therefore x^2 - 8x + 12 = 0$

$\therefore (x-2)(x-6) = 0$

$\therefore x = 2 \text{ or } x = 6$

$\therefore \text{The S.S.} = \{2, 6\}$

5

[a] $\therefore 3^{x+1} = 3^4$

$\therefore x+1 = 4$

$\therefore x = 3$

$\therefore 4^{x+y} = 64$

$\therefore 4^{3+y} = 4^3$

$\therefore 3+y = 3$

$\therefore y = 0$

[b] [1] The probability that the drawn card carries a prime number = $\frac{4}{10} = \frac{2}{5}$

[2] The probability that the drawn card carries a number divisible by 3 = $\frac{3}{10}$

5

Alexandria

[1] [1] (c)

[2] (b)

[3] (c)

[4] (a)

[5] (b)

[2] [1] 3

[2] $3x^2$

[3] 5

[4] 1

3

[1] $(x-3)(x-5)$

[2] $x(a-b)+y(a-b)=(a-b)(x+y)$

[3] $(x+3)(x^2-3x+9)$

[4] $(7x-5)(7x+5)$

4

[a] $\therefore x^2 + 7x - 18 = 0$

$\therefore (x-2)(x+9) = 0$

$\therefore x = 2 \text{ or } x = -9$

$\therefore \text{The S.S.} = \{2, -9\}$

[b] $\therefore (\sqrt{3})^{x-3} = 9$

$\therefore (\sqrt{3})^{x-3} = (\sqrt{3})^4$

$\therefore x-3 = 4$

$\therefore x = 7$

5

[a] $\frac{(3^3)^x \times (5^2)^x}{(3 \times 5)^{2x}} = \frac{3^{2x} \times 5^{2x}}{3^{2x} \times 5^{2x}} = 1$

[b] [1] The probability of getting a yellow ball

$= \frac{0}{50} = \text{zero}$

[2] The probability of getting a red or blue ball

$= \frac{12+20}{50} = \frac{32}{50} = \frac{16}{25}$

6 El-Kalyoubia

1 **1** (c) **2** (c) **3** (d)

4 (a) **5** (c)

2 **1** 1 **2** 1, y **3** -3 **4** 3

3

[a] **1** $(5x-8)(5x+8)$

2 $(2x+5)(x-3)$

3 $y(x+5)+7(x+5)=(x+5)(y+7)$

[b] $\frac{(2^3)^{x+1} \times 3^{2x}}{(2 \times 3)^{2x}} = \frac{2^{2x+2} \times 3^{2x}}{2^{2x} \times 3^{2x}} = 2^{2x+2-2x} = 2^2 = 4$

4

[a] $(99)^2 + 2 \times 99 + 1 = (99+1)(99+1)$
 $= 100 \times 100 = 10000$

[b] $\therefore 3^{x-2} = \frac{1}{3^3} \quad \therefore 3^{x-2} = 3^{-3}$

$\therefore x-2 = -3 \quad \therefore x = -1$

5

[a] $\therefore x^2 + 4x - 12 = 0 \quad \therefore (x+6)(x-2) = 0$
 $\therefore x = -6 \text{ or } x = 2 \quad \therefore \text{The S.S.} = \{-6, 2\}$

[b] **1** The probability that the drawn ball carries
 a prime number = $\frac{5}{12}$

2 The probability that the drawn ball carries
 a number divisible by 3 = $\frac{4}{12} = \frac{1}{3}$

7 El-Monofia

1 **1** (a) **2** (b) **3** (d)

4 (c) **5** (b)

2 **1** 3 **2** 1 **3** $\frac{1}{4}$ **4** 0.35

3

1 $5(3x^2 + 5x - 2) = 5(3x-1)(x+2)$

2 $(2x-3)(2x+3)$

3 $(x+5)(x^2 - 5x + 25)$

4 $(x-4)^2$

5 $x(a-c) + y(a-c) = (a-c)(x+y)$

4

[a] $\frac{(3^2)^x \times (5^2)^{x+1}}{(3 \times 5)^{2x}} = \frac{3^{2x} \times 5^{2x+2}}{3^{2x} \times 5^{2x}}$
 $= 5^{2x+2-2x} = 5^2 = 25$

[b] Let the width be x cm.

\therefore The length = $(x+5)$ cm.

$\therefore x(x+5) = 36 \quad \therefore x^2 + 5x - 36 = 0$

$\therefore (x-4)(x+9) = 0$

$\therefore x = 4 \text{ or } x = -9 \text{ (refused)}$

\therefore The width = 4 cm, the length = 9 cm.

5

[a] $\therefore \left(\sqrt{\frac{2}{3}}\right)^{-x} = \left(\sqrt{\frac{2}{3}}\right)^4$

$\therefore -x = 4 \quad \therefore x = -4$

$\therefore \left(\frac{3}{2}\right)^{x+1} = \left(\frac{3}{2}\right)^{-4+1} = \left(\frac{3}{2}\right)^{-3} = \left(\frac{2}{3}\right)^3 = \frac{8}{27}$

[b] **1** The probability of the drawn ball is blue
 $= \frac{5}{20} = \frac{1}{4}$

2 The probability of the drawn ball is black = $\frac{7}{20}$

3 The probability of the drawn ball is not blue
 $= \frac{7+8}{20} = \frac{15}{20} = \frac{3}{4}$

8 El-Dakahlia

1 **1** (d) **2** (b) **3** (c)

4 (b) **5** (d)

2 **1** 75 **2** \emptyset **3** 3 **4** $\frac{1}{6}$

3

1 $(4x-3)(4x+3)$

2 $(x+3)(x+4)$

3 $(5x+2)(x-1)$

4 $3(x^3+8) = 3(x+2)(x^2-2x+4)$

5 $(a-3b)^2$

Answers of Algebra and Statistics

4

[a] $\therefore x^2 - 2x - 15 = 0$

$\therefore (x-5)(x+3) = 0 \quad \therefore x = 5 \text{ or } x = -3$

$\therefore \text{The S.S.} = \{5, -3\}$

[b] $\therefore \frac{(2^7)^4 \times (3^7)^x}{(2^2 \times 3^2)^x} = 2^6$

$\therefore \frac{2^{28} \times 3^{28x}}{2^{2x} \times 3^{2x}} = 2^6 \quad \therefore 2^{8x-2x} = 2^6$

$\therefore 2^6x = 2^6 \quad \therefore 6x = 6 \quad \therefore x = 1$

5

[a] $\therefore 2^{x+1} = 2^5$

$\therefore x+1 = 5 \quad \therefore x = 4$

[b] [1] The probability of drawing a ball carrying an even number = $\frac{5}{10} = \frac{1}{2}$

[2] The probability of drawing a ball carrying an number less than 4 = $\frac{3}{10}$

9

Suez

[1] [1] (b) [2] (c) [3] (c)

[4] (c) [5] (b)

[2] [1] 0, 1 [2] 7, 1 [3] {0, 5} [4] 1

3

[1] $(x-5)(x+5)$

[2] $(x-2)(x^2+2x+4)$

[3] $(x-1)(x+6)$

[4] $7(x-4) + a(x-4) = (x-4)(7+a)$

4

[a] $\frac{2^x \times (2^3)^{x+1}}{(2^2)^x} = \frac{2^x \times 2^{2x+2}}{2^{2x}} = \frac{2^{x+2x+2}}{2^{2x}} = \frac{2^{3x+2}}{2^{2x}} = 2^{3x+2-2x} = 2^{x+2} = 2^2 = 4$

[b] $\therefore x^2 - 7x + 10 = 0$

$\therefore (x-2)(x-5) = 0 \quad \therefore x = 2 \text{ or } x = 5$

$\therefore \text{The S.S.} = \{2, 5\}$

5

[a] $\therefore 3^{n-2} = 3^2$

$\therefore n-2 = 2 \quad \therefore n = 4$

[b] [1] The probability of getting a card that carrying a number divisible by 5 = $\frac{3}{15} = \frac{1}{5}$

[2] The probability of getting a card that carrying a prime number = $\frac{6}{15} = \frac{2}{5}$

[3] The probability of getting a card that carrying a multiple of number 4 = $\frac{3}{15} = \frac{1}{5}$

10

El-Beheira

[1] [1] (d) [2] (b) [3] (c)

[4] (d) [5] (c)

[2] [1] $\frac{1}{3}$ [2] fourth [3] 5 [4] -49

3

[1] $2(8x^3 + 27) = 2(2x+3)(4x^2 - 6x + 9)$

[2] $y(x-7) + 3(x-7) = (x-7)(y+3)$

[3] $(x+2)(x-12)$

[4] $(2x-3)(x+2)$

4

[a] Let the real positive number be x

$\therefore 2x + x^2 = 35 \quad \therefore x^2 + 2x - 35 = 0$

$\therefore (x-5)(x+7) = 0$

$\therefore x = 5 \text{ or } x = -7 \text{ (refused)}$

$\therefore \text{The real positive number} = 5$

[b] $\therefore \frac{(2 \times 3)^{2n} \times (2^2)^n}{2^{n+1} \times 3^{2n}} = 2^5$

$\therefore \frac{2^{2n} \times 3^{2n} \times 2^{2n}}{2^{n+1} \times 3^{2n}} = 2^5 \quad \therefore 2^{2n+2n-n-1} = 2^5$

$\therefore 2^{3n-1} = 2^5 \quad \therefore 3n-1 = 5$

$\therefore 3n = 6 \quad \therefore n = 2$

5

[a] [1] $x^2 y^4 = 3^2 \times (\sqrt{2})^4 = 9 \times 4 = 36$

[2] $x^2 + y^4 = 3^2 \times (\sqrt{2})^4 = 9 + 4 = 13$

- [b] ① The probability of getting a green ball

$$= \frac{8}{20} = \frac{2}{5}$$

- ② The probability of getting a ball not yellow

$$= \frac{7+8}{20} = \frac{15}{20} = \frac{3}{4}$$

- ③ The probability of getting a red ball = $\frac{7}{20}$

- ④ The probability of getting a blue ball

$$= \frac{0}{20} = \text{zero}$$

11 El-Menia

- ① ① (b) ② (b) ③ (b)

- ④ (d) ⑤ (d)

- ② ① 6 ② 3 ③ \emptyset ④ ± 12

3

- [a] ① $(X+2)(X^2-2X+4)$

$$\text{② } X^4 + 16X^2y^2 + 64y^4 - 16X^2y^2$$

$$= (X^2 + 8y^2)^2 - 16X^2y^2$$

$$= (X^2 + 8y^2 - 4Xy)(X^2 + 8y^2 + 4Xy)$$

- [b] $\therefore 3X^2 + 10X + 8 = 0$

$$\therefore (3X+4)(X+2) = 0$$

$$\therefore X = -\frac{4}{3} \text{ or } X = -2$$

$$\therefore \text{The S.S.} = \left\{-\frac{4}{3}, -2\right\}$$

4

$$[a] \frac{(2^2)^{X+1} \times (3^2)^{2-X}}{(2 \times 3)^{2X}} = \frac{2^{2X+2} \times 3^{4-2X}}{2^{2X} \times 3^{2X}}$$

$$= 2^{2X+2-2X} \times 3^{4-2X-2X}$$

$$= 2^2 \times 3^{4-4X}$$

At $X = 1$

$$\therefore 2^2 \times 3^{4-4 \times 1} = 4 \times 3^{4-4} = 4 \times 3^0 = 4 \times 1 = 4$$

$$[b] \therefore 3^{X-2} = 3^4$$

$$\therefore X-2 = 4$$

$$\therefore X = 6$$

5

$$[a] \text{ ① } (X+7)^2$$

$$\text{② } a(X-7) + 3(X-7) = (X-7)(a+3)$$

- [b] ① The probability of getting a white ball = $\frac{3}{10}$

- ② The probability of getting non red ball

$$= \frac{3+5}{10} = \frac{8}{10} = \frac{4}{5}$$

- ③ The probability of getting a yellow ball

$$= \frac{0}{10} = \text{zero}$$

12 Aswan

- ① ① (a) ② (d) ③ (b)

- ④ (c) ⑤ (a)

$$\text{② } \text{① } -\frac{3}{5} \quad \text{② } X-5 \quad \text{③ } -2 \quad \text{④ } 66$$

3

$$[a] \text{ ① } (X-5)(X+5) \quad \text{② } (3X-2)(X+3)$$

$$[b] \therefore \frac{(2^2)^{X+1} \times (3^2)^X}{(2 \times 3)^{2X}} = \frac{2^{2X+2} \times 3^{2X}}{2^{2X} \times 3^{2X}} = 2^{2X+2-2X} = 2^2 = 4$$

$$\therefore \frac{4^{X+1} \times 9^X}{6^{2X}} = 4$$

4

$$[a] \frac{(\sqrt{3})^5 \times (\sqrt{3})^3}{(\sqrt{3})^4} = (\sqrt{3})^{5+3-4} = (\sqrt{3})^4 = 9$$

$$[b] \therefore X^2 - X - 12 = 0$$

$$\therefore (X-4)(X+3) = 0 \quad \therefore X = 4 \text{ or } X = -3$$

$$\therefore \text{The S.S.} = \{4, -3\}$$

5

$$[a] \text{ ① } (X+5)(X^2-5X+25)$$

$$\text{② } (y-z)(X+t)$$

- [b] ① The probability that the chosen student is

$$\text{succeeded in mathematic} = \frac{10}{30} = \frac{1}{3}$$

- ② The probability that the chosen student is

$$\text{succeeded in science} = \frac{20}{30} = \frac{2}{3}$$

- ③ The probability that the chosen student is

$$\text{failed in science} = \frac{10}{30} = \frac{1}{3}$$

كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9



حمل الآن

مجانا وحصريا

امتحانات رقم (2)

الترم الثاني



Model 1

Answer the following questions :

1 Complete the following :

- 1 If $2^{X+3} = 1$, then $X = \dots\dots\dots$
- 2 If $X + y = 4$, $X - y = 2$, then $X^2 - y^2 = \dots\dots\dots$
- 3 The solution set of the equation : $X^2 - 1 = 8$, where $X \in \mathbb{Z}^+$ is $\dots\dots\dots$
- 4 If $2^X = 3$, then $8^{-X} = \dots\dots\dots$
- 5 $1 - \frac{3}{4} = \dots\dots\dots\%$

2 Choose the correct answer :

- 1 $\frac{5^{-2} \times \sqrt{5}}{5\sqrt{5}} = \dots\dots\dots$
 (a) $\frac{1}{125}$ (b) $\frac{1}{25}$ (c) 25 (d) 125
- 2 $\mathbb{Z} - \mathbb{Z}^- = \dots\dots\dots$
 (a) \mathbb{Z}^+ (b) \mathbb{N} (c) \emptyset (d) $\{0\}$
- 3 The volume of a cube of side length 3 cm. equals $\dots\dots\dots \text{cm}^3$.
 (a) 9 (b) 12 (c) 27 (d) 81
- 4 The expression : $X^2 + kX + 36$ is a perfect square when k equals $\dots\dots\dots$
 (a) ± 6 (b) ± 8 (c) ± 12 (d) ± 18
- 5 A regular die is thrown once and observed the upper face, then the probability of appearance a number divisible by 3 is $\dots\dots\dots$
 (a) $\frac{1}{4}$ (b) $\frac{1}{3}$ (c) $\frac{1}{2}$ (d) $\frac{3}{4}$
- 6 If $\left(\frac{5}{3}\right)^X = \frac{27}{125}$, then $X = \dots\dots\dots$
 (a) -5 (b) -3 (c) 3 (d) 5

3 Factorize each of the following expressions :

- 1 $X^2 + 8X + 15$ 2 $2X^2 + 7X + 3$ 3 $X^3 - 1$ 4 $aX - 7a + 3X - 21$

4 [a] Simplify to the simplest form : $\frac{4^n \times 6^{2n}}{2^{4n} \times 3^{2n}}$

[b] Find the S.S. for the following equation where $X \in \mathbb{R}$: $X^2 - 8X + 12 = 0$

5 [a] A bag contains a number of similar balls, 5 of them are white and the rest are red. If the probability of drawing a red ball is $\frac{2}{3}$, find the number of all the balls.

[b] If $3^X = 27$, $4^{X+y} = 1$, find the values of : X and y

Model 2*Answer the following questions :***1 Complete the following :**

1 If $7^{X-1} = 3^{X-1}$, then $X = \dots\dots\dots$

2 $X^3 - \dots\dots\dots = (X-2)(\dots\dots\dots + 2X+4)$

3 $(5X-2y)(25X^2+10Xy+4y^2) = \dots\dots\dots$

4 If $\frac{2X}{5} = 6$, then $X = \dots\dots\dots$

5 A bag contains 9 cards labeled by numbers from 1 to 9, a card is drawn randomly, then the probability that the card carries an odd number is $\dots\dots\dots$ **2 Choose the correct answer :**

1 If $X^3 y^{-3} = 8$, then $\frac{y}{X} = \dots\dots\dots$

(a) 8

(b) $\frac{1}{8}$

(c) $\frac{1}{2}$

(d) 2

2 The expression : $X^2 + 4X + a$ is a perfect square when a equals $\dots\dots\dots$

(a) 3

(b) 4

(c) 8

(d) 16

3 The S.S. of the equation : $X^2 - X = 0$ is $\dots\dots\dots$ where $X \in \mathbb{R}$

(a) $\{0\}$

(b) \emptyset

(c) $\{0, 1\}$

(d) $\{1\}$

4 In the figure opposite :The shaded region represents $\dots\dots\dots$ the circle.

(a) $\frac{1}{8}$

(b) $\frac{1}{6}$

(c) $\frac{1}{4}$

(d) $\frac{1}{3}$

5 If $3^X + 3^X + 3^X = 1$, then $X = \dots\dots\dots$

(a) -1

(b) 0

(c) $\frac{1}{3}$

(d) 1

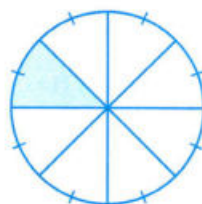
6 If $6^X = 11$, then $6^{X+1} = \dots\dots\dots$

(a) 12

(b) 22

(c) 66

(d) 72

**3 Factorize each of the following :**

1 $4X^2 - 9$

2 $X^3 + 8$

3 $X^2 - 5X$

4 $X^2 - X - 6$

4 [a] Find in \mathbb{R} the S.S. of the following equation : $X^2 - X - 6 = 0$

[b] Simplify to the simplest form : $\frac{(\sqrt{2})^5 \times 3^{-2}}{3 \times (\sqrt{2})^9}$

5 [a] If $\frac{2^x \times 3^x}{(12)^x} = \frac{1}{2}$, find the value of x

[b] A bag contains a number of similar balls. Some of them are red, 2 green, 4 blue.

If the probability of drawing a ball with green colour is $\frac{1}{6}$, find the number of red balls.

Model for the merge students

Answer the following questions :

1 Choose the correct answer from those given :

1 The solution set of the equation : $x^2 + 25 = 0$ in \mathbb{R} is

- (a) $\{-5, 5\}$ (b) $\{5\}$ (c) $\{-5\}$ (d) \emptyset

2 If the expression : $x^2 + ax + 9$ is a perfect square, then $a =$

- (a) 3 (b) 6 (c) 9 (d) 18

3 If $(x - 1)$ is one factor of the expression : $x^2 - 4x + 3$, then the other factor is

- (a) $x + 3$ (b) $x + 1$ (c) $x - 3$ (d) $x - y$

4 If $\left(\frac{5}{3}\right)^x = \left(\frac{3}{5}\right)^2$, then $x =$

- (a) -2 (b) 2 (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$

5 The probability of the sure event equals

- (a) 0 (b) $\frac{1}{2}$ (c) 1 (d) 2

2 Join from the column (A) to the suitable in the column (B) :

| Column (A) | Column (B) |
|---|-----------------|
| 1 If $a^2 - b^2 = 15$, $a + b = 3$, then $a - b =$ | • 5 |
| 2 If one digit of the number 37450 is chosen at random, then the probability of the chosen number is even = | • 6 |
| 3 If $(x + 3y)^2 = x^2 + kxy + 9y^2$, then $k =$ | • $\frac{2}{5}$ |
| 4 $4^3 + 4^3 + 4^3 + 4^3 =$ | • 0 |
| 5 The probability of the impossible event = | • 4^4 |

3 Complete each of the following :

$$1 \quad x^2 - y^2 = (\dots - \dots) (\dots + \dots)$$

$$2 \quad x^3 - 8 = (\dots - \dots) (x^2 + 2x + \dots)$$

$$3 \quad x^2 - 5x + 6 = (x - \dots) (\dots - 3)$$

$$4 \quad (a + b)x + (a + b)y = (a + \dots) (\dots + \dots)$$

4 Put (✓) for the correct statement and (✗) for the incorrect one :

1 A school has 320 pupils , if the probability of the chosen pupil is a boy is 0.6 ,
then the number of girls is 120 ()

2 If $3^x = 27$, then $x = \frac{1}{3}$ ()

3 A card is drawn at random , from cards numbered from 1 to 10 ,
then the probability that the card carries an odd number greater than 3 is $\frac{3}{10}$ ()

4 The positive real number which if its square is added to its three times ,
the result will be 28 is 4 ()

5 The solution set of the equation : $x(x - 3)(x + 5) = 0$ in \mathbb{R} is $\{0, 3, -5\}$ ()

5 Complete the solution in which the expression : $\frac{4^n \times 6^{2n}}{2^{4n} \times 3^{2n}}$ in its simplest form :

$$\begin{aligned} \frac{(2 \dots)^n \times (\dots \times 3)^{2n}}{2^{4n} \times 3^{2n}} &= \frac{2 \dots \times \dots^{2n} \times 3^{2n}}{2^{4n} \times 3^{2n}} \\ &= 2 \dots + 2n - \dots \times 3^{2n \dots} \\ &= 2 \dots \times 3 \dots \\ &= \dots \end{aligned}$$



1

Cairo Governorate

East Nasr City Educational Administration
Manart Al Salam Language School

Answer the following questions :

1 Choose the correct answer :

- 1 The expression : $X^2 + kX + 36$ is a perfect square when $k = \dots\dots\dots$
 (a) ± 6 (b) ± 8 (c) ± 12 (d) ± 18
- 2 If a regular die is tossed once , then the probability of appearing an even number equals $\dots\dots\dots$
 (a) $\frac{1}{2}$ (b) $\frac{1}{6}$ (c) $\frac{5}{6}$ (d) 0
- 3 If the age of Ali now is X years , then his age 3 years ago is $\dots\dots\dots$ years.
 (a) $X + 3$ (b) $3X - 4$ (c) $X - 3$ (d) $6X$
- 4 Fifth of 5^{20} is $\dots\dots\dots$
 (a) 5^{15} (b) 5^{10} (c) 5^{19} (d) 5^{40}
- 5 $\mathbb{R}^+ \cap \mathbb{R}^- = \dots\dots\dots$
 (a) 0 (b) \emptyset (c) $\{0\}$ (d) \mathbb{R}
- 6 If $7^{X-3} = 5^{X-3}$, then $X = \dots\dots\dots$
 (a) 5 (b) 7 (c) 3 (d) 0

2 Complete :

- 1 $(a - 3)(a - 2) = \dots\dots\dots - 5a + \dots\dots\dots$
- 2 $X(y - z) + m(y - z) = (y - z)(\dots\dots\dots)$
- 3 The S.S. of the equation : $X^2 + 3X = 0$ in \mathbb{R} is $\dots\dots\dots$
- 4 If $\left(\frac{5}{3}\right)^X = \frac{27}{125}$, then $X = \dots\dots\dots$
- 5 If $X - y = 5$ and $X + y = 7$, then $X^2 - y^2 = \dots\dots\dots$
- 6 The probability of the impossible event is $\dots\dots\dots$

3 Factorize each of the following :

- 1 $4X^2 - 9$ (2) $*X^4 + 4y^4$
- 3 $X^3 + 8$ (4) $X^2 - X - 6$

- [b]** If $\frac{9^x \times 3^{2x}}{27^x} = 9$, find : the value of x

- Find the probability of getting :**

- 1 A white ball.
- 2 A non red ball.
- 3 A yellow ball.
- 4 A red or blue ball.

- [b]** If $3^{x-4} = 9$, find the S.S. in \mathbb{R}

Rod El-Farag Educational Directorate
St. Mary's School

Answer the following questions :

- 1 Choose the correct answer :**

- 1** * The expression : $X^4 + 4$ can be factorized as a perfect square by adding the term and its additive inverse.
- (a) $4X^2$ (b) $2X^2$ (c) $8X^2$ (d) $4X^4$
- 2** If $X^2 - y^2 = 12$, $X + y = 4$, then $X - y =$
- (a) 3 (b) 8 (c) 16 (d) 2
- 3** If the expression : $4X^2 + kX + 9$ is a perfect square , then $k =$
- (a) ± 6 (b) 6 (c) ± 12 (d) 12
- 4** If $7^{X+2} = 1$, then $X =$
- (a) 1 (b) -2 (c) 2 (d) 7
- 5** $3^3 + 3^3 + 3^3 =$
- (a) 3^3 (b) 3^9 (c) 3^4 (d) 3^{12}
- 6** If a regular dice is tossed once , then the probability of appearing an even number equals
- (a) $\frac{1}{6}$ (b) $\frac{5}{6}$ (c) $\frac{1}{2}$ (d) zero

- 2 Complete :**

- 1** The S.S. of : $X^2 - 3X = 0$ in \mathbb{R} is
2 $X(y - z) + m(z - y) = (y - z) (\dots\dots\dots)$
3 If $3^{n+1} = 6$, then $3^n = \dots\dots\dots$
4 If $X = \sqrt{6}$, $y = \sqrt{3}$, then $X^4 y^{-4} = \dots\dots\dots$

5 $\frac{3}{4} = \dots\dots\dots \%$

6 If $x + y = 7$, then $7x + 7y = \dots\dots\dots$

3 [a] Factorize :

1 $ax - 7a + 3x - 21$

2 $10x^2 - 7x - 12$

[b] If $x + y = 6$, $x^2 - y^2 = 12$, $x^2 + xy + y^2 = 28$,
find the value of : $x^3 - y^3$

4 [a] Find the S.S. of the equation : $x^2 - 8x = -15$ in \mathbb{R}

[b] Simplify : $\frac{3^{2x+1} \times 25^x}{15^{2x}}$

5 [a] If $\left(\frac{2}{5}\right)^{x+1} = \frac{8}{125}$, find : the value of x

[b] A group of cards numbered from 1 to 15. If one card is drawn at random,
find the probability that the number on the drawn card is :

1 Even.

2 Divisible by 5

3

Giza Governorate



Al-Agoza Directorate
El-Manar Islamic Language School

Answer the following questions :

1 Choose the correct answer :

1 The probability of the impossible event is

(a) zero (b) $\frac{1}{2}$ (c) 1 (d) 2

2 If $x^2 + 4x + k$ is a perfect square, then $k = \dots\dots\dots$

(a) 1 (b) 2 (c) 3 (d) 4

3 $3^3 + 3^3 + 3^3 = \dots\dots\dots$

(a) 3^3 (b) 3^4 (c) 9^3 (d) 9^4

4 If $2^{x+3} = 1$, then $x = \dots\dots\dots$

(a) 2 (b) zero (c) -3 (d) 3

5 $\mathbb{Z}^+ \cap \mathbb{Z}^- = \dots\dots\dots$

(a) \mathbb{Z}^+ (b) \mathbb{Z}^- (c) \mathbb{N} (d) \emptyset

6 If $5^x = 2$, then $(125)^x = \dots\dots\dots$

(a) 6 (b) 9 (c) 8 (d) 12

2 Complete :

- 1 The simplest form of the number $5(\sqrt{5})^{-1}$ is
- 2 If $(X + 1)$ is one factor of the expression : $5X^2 - 2X - 7$, then the other factor is
- 3 The S.S. of the equation : $X^2 + 3 = 0$ in \mathbb{R} is
- 4 When throwing a fair die once and observing the upper face , the probability of appearing the number 6 is
- 5 If $3^{X-5} = 7^{X-5}$, then $X =$
- 6 $X^3 - \dots = (X - 2)(X^2 + \dots + \dots)$

- 3 [a] If $\left(\frac{5}{3}\right)^{-X} = \frac{27}{125}$, find : the value of X

[b] Find in \mathbb{R} the S.S. of the equation : $X^2 - 5X = 14$

4 Factorize completely :

- 1 $2X^2 - 8$ 2 $X^2 - X - 6$
- 3 $4X^2 - 9$

- 5 [a] Factorize completely : $aX - 7a + 3X - 21$

[b] A box contains 2 white balls , 3 red balls , 5 green balls. One ball is selected at random.
Find the probability of this ball to be :

- 1 White. 2 Not red. 3 Black.

4**Giza Governorate**
Math Inspection
Official Language School

Answer the following questions :

1 Complete the following :

- 1 $16y^2 - \dots = (\dots + 5)(4y - 5)$
- 2 If $(X - 5)$ is a factor of the expression : $X^2 - 7X + 10$, then the other factor is
- 3 $3^2 + 3^2 + 3^2 = \dots$
- 4 The probability of the impossible event is , while the probability of the certain event is

5 $(-5)^{-2} = \dots\dots\dots$

6 $(\sqrt{5})^3 \div 5\sqrt{5} = \dots\dots\dots$

2 Choose the correct answer :

1 If $\left(\frac{5}{3}\right)^x = \left(\frac{3}{5}\right)^3$, then $x = \dots\dots\dots$

- (a) -3 (b) -5 (c) 3 (d) 5

2 $2^2 \times 5^3 = \dots\dots\dots$

- (a) $\frac{1}{2} \times 10^3$ (b) 10^3 (c) 10^5 (d) 10^6

3 The trinomial : $x^2 + kx + 36$ is a perfect square when $k = \dots\dots\dots$

- (a) ± 3 (b) ± 6 (c) ± 9 (d) ± 12

4 The solution set of the equation : $x^2 - 5x + 6 = 0$ in \mathbb{R} is $\dots\dots\dots$

- (a) $\{1, 6\}$ (b) $\{-1, -6\}$ (c) $\{2, 3\}$ (d) $\{-3, -2\}$

5 If $a + b = 5$, $a - b = 4$, then $a^2 - b^2 = \dots\dots\dots$

- (a) -20 (b) -1 (c) 9 (d) 20

6 If $(2023)^{x-5} = 1$, then $x = \dots\dots\dots$

- (a) 2028 (b) 2018 (c) 1 (d) 5

3 [a] Factorize each of the following :

1 $x^2 - 12x + 36$

2 $x^3 - 27$

3 $a^2x - 7a + 3x - 21$

4 $* 81x^4 + 4z^4$

[b] If $3^x = 27$ and $4^{x+y} = 1$, then find : the values of x and y

4 [a] A bag contains 9 similar cards labeled from 1 to 9 , a card is drawn at random , then find :

- 1 The probability of that card carries an odd number.
2 The probability of that card carries a number divisible by 3

[b] Simplify to the simplest form : $\frac{(\sqrt{2})^5 \times 3^{-2}}{3^{-1} \times (\sqrt{2})^3}$

5 [a] Find in \mathbb{R} the solution set of the equation : $x^2 + 8x = 9$

[b] If $x = 3$, $y = \sqrt{2}$, find in the simplest form the value of : $\left(\frac{x}{y}\right)^{-2}$

5

Alexandria Governorate

East Educational Zone
Supervision of Mathematics (A)

Answer the following questions : (Calculator is allowed)

1 Choose the correct answer :

- 1 The S.S. of the equation : $X = \frac{4}{X}$ in \mathbb{R} is
- (a) $\{4\}$ (b) $\{\frac{1}{4}\}$ (c) $\{2, -2\}$ (d) $\{\frac{1}{4}, -\frac{1}{4}\}$
- 2 $20\% + 0.05 = \dots\dots\dots$
- (a) 50% (b) 30% (c) 25 (d) $\frac{1}{4}$
- 3 $3^a \times 3^a \times 3^a = \dots\dots\dots$
- (a) 3^{a+3} (b) 9^a (c) 3^{3a} (d) 27^{3a}
- 4 If $X^2 - y^2 = 6$, $y - X = 2$, then $X + y = \dots\dots\dots$
- (a) -9 (b) -3 (c) 9 (d) 3
- 5 If $5^X = 125$, then $X = \dots\dots\dots$
- (a) 3 (b) 2 (c) 25 (d) 5
- 6 If the expression : $X^2 + kX + 16$ is a perfect square , then $k = \dots\dots\dots$
- (a) -4 (b) ± 8 (c) 16 (d) ± 4

2 Complete each of the following :

- 1 If $X^3 - a = (X - 4)(X^2 + 4X + 16)$, then $a = \dots\dots\dots$
- 2 $\sqrt{4^3} = \dots\dots\dots$
- 3 The additive inverse of $(-3)^2$ is
- 4 If $7^{X-1} = 3^{X-1}$, then $X = \dots\dots\dots$
- 5 If $2^y \times 5^y = 100$, then $y = \dots\dots\dots$
- 6 If the probability that a pupil succeeds is 0.4 , then the probability of his failure is %

3 Factorize each of the following :

- 1 $X^3 + 7X^2 + 12X$ (2) $X^2 + 6Xy + 9y^2 - 49a^2$
- 3 $2X^3 - 16$ (4) $25 - X^2$

- 4 [a] A positive integer , if we add its square to its triple , the result will be 18
What is this integer ?

- [b] If $4^{X-1} = 8$, then find : the value of X

- 5 [a] A box contains 30 cards numbered from 1 to 30 , a card is drawn randomly.

Calculate the probability of drawing a card carrying :

- 1 An odd number. 2 A number divisible by 5 3 A perfect square.

- [b] Put the following in the simplest form : $\frac{4^x \times 9^x}{6^{2x}}$

6

El-Kalyoubia Governorate



Maths Supervision
Official Language Schools

Answer the following questions :

- 1 Choose the correct answer from those given :

- 1 If $3^x = 2$, then $27^x = \dots\dots\dots$
 (a) 6 (b) 8 (c) 18 (d) 54
- 2 If the expression : $9x^2 + kx + 25$ is a perfect square , then $k = \dots\dots\dots$
 (a) ± 12 (b) ± 15 (c) ± 16 (d) ± 30
- 3 The multiplicative inverse of the number $(-3)^0$ is $\dots\dots\dots$
 (a) 3 (b) $\frac{1}{3}$ (c) 1 (d) -1
- 4 If the probability of solving problems of Salma is 0.8 , then the expected number of problems she may solve of 20 problems is $\dots\dots\dots$
 (a) 20 (b) 16 (c) 12 (d) 8
- 5 $(\sqrt{5} + 2)^{11} (\sqrt{5} - 2)^{11} = \dots\dots\dots$
 (a) $\sqrt{5}$ (b) 4 (c) 1 (d) -1
- 6 If $3^x + 3^x + 3^x = 1$, then $x = \dots\dots\dots$
 (a) -1 (b) 1 (c) 3 (d) -3

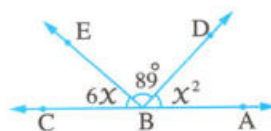
- 2 Complete the following :

- 1 If $x^3 + a = (x - 2)(x^2 + 2x + 4)$, then $a = \dots\dots\dots$
- 2 If $2^x = 7$, then $2^{x+1} = \dots\dots\dots$
- 3 If $x + y = 6$, $y - x = 4$, then $x^2 - y^2 = \dots\dots\dots$
- 4 If $3^{x+5} = 7^{x+5}$, then $x = \dots\dots\dots$

- 5 In the opposite figure :

$B \in \overleftrightarrow{AC}$, $m(\angle ABD) = x^2$
 , $m(\angle DBE) = 89^\circ$, $m(\angle EBC) = 6x$
 , then $x = \dots\dots\dots^\circ$

- 6 $5^0 + 5^{-1} - \left(\frac{-1}{\sqrt{5}}\right)^2 = \dots\dots\dots$



3 [a] Factorize each of the following perfectly :

1 $x^2 - 5x$

2 $x^2 - 7x - 8$

3 $a^2x - 7a + 3x - 21$

4 $x^4 + 4$

[b] Simplify the following to the simplest form : $\frac{2^x \times 9^{x+1}}{18^x}$

4 [a] Find in \mathbb{R} the solution set of the equation : $x^2 + 12 = 8x$

[b] Find the value of x where $x \in \mathbb{Z}$ if : $\left(\frac{3}{2}\right)^{x-4} = 2\frac{1}{4}$

5 [a] If the expression : $x^2 + ax - 6$ can be factorized , find all possible values of a

[b] A set of cards numbered from 1 to 10 , if one card is drawn from them at random , find the probability that the drawn card carries :

1 A prime number.

2 A number greater than 7

7

El-Monofia Governorate



Shebin El-Kom Educational Zone
Maths supervision

Answer the following questions : (Calculator is allowed)

1 Choose the correct answer :

1 $\sqrt{5} \times \sqrt{5} = \dots\dots\dots$

(a) $2\sqrt{5}$

(b) 5

(c) $\sqrt{55}$

(d) 25

2 The degree of the algebraic term $2y^3z$ is $\dots\dots\dots$

(a) first.

(b) second.

(c) third.

(d) fourth.

3 If $2^x = 3$, then $2^{1-2x} = \dots\dots\dots$

(a) $\frac{1}{9}$

(b) $\frac{2}{9}$

(c) $\frac{1}{3}$

(d) $\frac{2}{3}$

4 If $x^2 + kx + 2k$ is a perfect square , then $k = \dots\dots\dots$

(a) -8

(b) 8

(c) ± 8

(d) 16

5 If $a^2 - b^2 = 21$, $a - b = 3$, then $a + b = \dots\dots\dots$

(a) 7

(b) 18

(c) 24

(d) 63

6 $(4^{x+2} - 4^{x+1}) \div 4^x = \dots\dots\dots$

(a) 4

(b) 8

(c) 12

(d) 16

2 Complete the following :

1 $(\sqrt{7})^9 \div (\sqrt{7})^6 = \dots\dots\dots \sqrt{7}$

- 2 The additive identity element in \mathbb{R} is
- 3 If $3^y - 2 = 1$, then $y = \dots\dots\dots$
- 4 The solution set of the equation : $x^2 = 3x$ in \mathbb{R} is
- 5 If the age of Khaled now is x years, then his age 4 years ago is years.
- 6 If the probability of success of a student in an exam is 0.8, then the probability of his failure equals

3 [a] Factorize :

1 $x^2 - 25$

2 $2x^2 + 5x - 7$

[b] If $\left(\frac{3}{4}\right)^{x+1} = \frac{9}{16}$, find the value of : $\left(\frac{2}{5}\right)^{2-x}$

4 [a] Factorize :

1 $x^3 + 8$

2 $xy + 7x + 21 + 3y$

[b] Simplify : $\frac{9^n \times 3^{n+2}}{27^n}$

5 [a] Find the solution set in \mathbb{R} : $x^2 - 7x + 12 = 0$

[b] A box contains 5 white balls, 3 red balls, 4 blue balls. If a ball is drawn from the box randomly, find the probability that the drawn ball is :

1 White.

2 Red or blue.

3 Green.

8

El-Gharbia Governorate



The Central Maths Supervision
Official Language Schools

Answer the following questions :

1 Choose the correct answer from those given :

1 $\frac{5^{-2} \times \sqrt{5}}{5\sqrt{5}} = \dots\dots\dots$

(a) $\frac{1}{125}$

(b) $\frac{1}{25}$

(c) 25

(d) 125

2 The volume of a cube of edge length 5 cm. equals cm^3

(a) 5

(b) 25

(c) 10

(d) 125

3 A regular die is thrown once and observed the upper face, then the probability of appearance a number divisible by 3 is

(a) $\frac{1}{4}$

(b) $\frac{1}{3}$

(c) $\frac{1}{2}$

(d) $\frac{3}{4}$

- 4 If $6^x = 11$, then $6^{x+1} = \dots\dots\dots$
 (a) 12 (b) 22 (c) 66 (d) 72
- 5 If the expression : $x^2 + 14x + b$ is a perfect square, then $b = \dots\dots\dots$
 (a) 2 (b) 7 (c) 14 (d) 49
- 6 $(5^{x+2} - 5^{x+1}) \div 5^x = \dots\dots\dots$
 (a) 5 (b) 10 (c) 15 (d) 20

2 Complete each of the following :

- 1 The S.S. of the equation : $x^2 + 4 = 0$, where $x \in \mathbb{R}$ is $\dots\dots\dots$
- 2 If $x + y = 4$, $x - y = 2$, then $y^2 - x^2 = \dots\dots\dots$
- 3 $1 - \frac{3}{4} = \dots\dots\dots \%$
- 4 If $7^{x-1} = 3^{x-1}$, then $x = \dots\dots\dots$
- 5 $(2x - 3y)(4x^2 + 6xy + 9y^2) = \dots\dots\dots$
- 6 If $x^3 y^{-3} = 8$, then $\frac{y}{x} = \dots\dots\dots$

- 3 [a] Simplify to the simplest form : $\frac{4^{x+1} \times 9^{2-x}}{6^2 x}$, then calculate the result when $x = 1$
- [b] Find the S.S. for the equation : $x^2 - 3x = 10$, where $x \in \mathbb{R}$

4 Factorize each of the following expressions :

- 1 $x^2 - 12x + 36$ (2) $2x^2 + 7x + 3$
- 3 $512x^3 - y^3$ (4) $*x^4 + 64$

- 5 [a] If $3^{x-2} = 81$, find : the value of x
- [b] A bag contains a number of similar balls, 4 red balls, 6 white balls and 5 green balls. A ball is drawn randomly. Find the probability that the drawn ball is :
- (1) Red. (2) White. (3) Not green.

9

Suez Governorate


 Directory of Education
 Math Inspectorate

Answer the following questions :

1 Choose the correct answer :

- 1 If $\left(\frac{2}{5}\right)^x = \left(\frac{5}{2}\right)^2$, then $x = \dots\dots\dots$
 (a) -2 (b) 2 (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$

2 If $(X - 3)$ is a factor of the expression : $X^2 - 4X + 3$, then the other factor is

- (a) $(X + 1)$ (b) $(X - 1)$ (c) $(X + 3)$ (d) $(X - 3)$

3 If the expression : $X^2 + kX + 25$ is a perfect square , then $k =$

- (a) ± 5 (b) 5 (c) ± 10 (d) 10

4 If $2^X = 3$, then $8^X =$

- (a) 3 (b) 9 (c) 27 (d) 81

5 The probability of the impossible event equals

- (a) 1 (b) -1 (c) 0 (d) 0.5

6 The S.S. of : $X^2 + 25 = 0$ in \mathbb{R} is

- (a) $\{-5, 5\}$ (b) $\{5\}$ (c) $\{-5\}$ (d) \emptyset

2 Complete :

1 If $7^{X-3} = 5^{X-3}$, then $X =$

2 Quarter of the number 2^{10} is

3 If $a - b = 4$, $a + b = 5$, then $a^2 - b^2 =$

4 $2^2 \times 5^2 =$

5 If the probability of a student succeeds is 0.6 , then the probability of his failure is

6 The S.S. of : $X(X - 2)(X + 3) = 0$ in \mathbb{R} is

3 Factorize each of the following :

1 $X^2 - 81$

2 $X^3 - 27$

3 $2X^2 - X - 15$

4 $aX - 7a + 3X - 21$

4 [a] Find in \mathbb{R} the S.S. of : $X^2 - 8X + 12 = 0$

[b] Find in the simplest form : $\frac{9^X \times 3^{X+2}}{27^X}$

5 [a] If $3^X = 27$, $5^{X+y} = 1$, find : the values of X and y

[b] A coloured ball is drawn randomly out of a box containing 2 red balls , 8 white balls and 10 blue balls. Find the probability that the drawn ball is :

1 A white ball.

2 A red ball.

3 A yellow ball.

4 A non red ball.

10

El-Beheira Governorate

Kafr El-Dawar Educational Zone
Private Education Administration*Answer the following questions :***1 Choose the correct answer :**

- 1 If $16x^2 + kx + 9$ is a perfect square , then $k = \dots\dots\dots$
 (a) ± 6 (b) ± 24 (c) ± 12 (d) ± 144
- 2 If $x^3 - y^3 = 26$, $x^2 + xy + y^2 = 13$, then $3(x - y) = \dots\dots\dots$
 (a) 39 (b) 13 (c) 6 (d) 2
- 3 If $5^x = 4$, then $5^{x-1} = \dots\dots\dots$
 (a) 8 (b) 1.25 (c) 0.8 (d) 20
- 4 The S.S. of the equation : $x^3 - 36x = 0$ in \mathbb{R} is $\dots\dots\dots$
 (a) $\{6, -6\}$ (b) \emptyset (c) $\{0\}$ (d) $\{0, 6, -6\}$
- 5 $2^5 + (\sqrt{2})^{10} = \dots\dots\dots$
 (a) 2^{10} (b) 2^6 (c) $(\sqrt{2})^{15}$ (d) $(\sqrt{2})^{20}$
- 6 If $x + \frac{1}{x} = 6$, then $x^2 + \frac{1}{x^2} = \dots\dots\dots$
 (a) 36 (b) 30 (c) 34 (d) 32

2 Complete :

- 1 In the experiment of throwing a fair die once , then the probability of appearing an even prime number equals $\dots\dots\dots$
- 2 The degree of the algebraic term $5x^3y$ is $\dots\dots\dots$
- 3 If $4^{x-29} = \frac{1}{16}$, then $\sqrt[3]{x} = \dots\dots\dots$
- 4 $\mathbb{Z} - \mathbb{Z}_- = \dots\dots\dots$
- 5 The simplest form of : $x^0 + x^{-1} - \left(\frac{1}{\sqrt{x}}\right)^2$ is $\dots\dots\dots$, $x > 0$
- 6 If $x^2 - a = (x + 4)(x - 4)$, then $a = \dots\dots\dots$

3 Factorize perfectly :

- 1 $8x^2 - 24xy + 18y^2$ (2) $xy - 7y + 3x - 21$
 3 $x^2 - 10x - 24$ (4) $2x^2 + x - 6$

4 [a] Find in \mathbb{R} the solution set of the equation : $x^2 - 9x = 36$

[b] Simplify :

$$1 \quad \frac{(\sqrt{7})^{-4} \times (\sqrt{7})^{-3}}{(\sqrt{7})^{-9}}$$

$$2 \quad \frac{2^{2n+1} \times 5^{2n+1}}{10^{2n}}$$

5 [a] If $x = 3$, $y = \sqrt{2}$, find in the simplest form the value of :

$$1 \quad x^2 y^4$$

$$2 \quad \left(\frac{x}{y}\right)^{-2}$$

[b] A box contains 7 red balls , 8 green balls and 5 yellow balls. One ball is drawn randomly.**Find the probability of getting :****1** A green ball.**2** A ball not yellow.**3** A red ball.**4** A blue ball.**11****El-Menia Governorate****Mallawi Educational Directorate***Answer the following questions :***1 Choose the correct answer :****1** If $x + y = 3$, $x - y = 6$, then $x^2 - y^2 = \dots\dots\dots$

(a) 8

(b) 2

(c) 4

(d) 18

2 If $x^3 y^{-3} = 8$, then $\frac{x}{y} = \dots\dots\dots$

(a) 8

(b) 2

(c) 5

(d) 3

3 $3^x + 3^x + 3^x = \dots\dots\dots$ (a) 3^3 (b) 3^{x+1} (c) 9^x (d) 3^x **4** If $\left(\frac{7}{3}\right)^x = \left(\frac{3}{7}\right)^{-2}$, then $x = \dots\dots\dots$

(a) 3

(b) 7

(c) 2

(d) -2

5 If $\frac{a}{b} = 1$, then $3a - 3b = \dots\dots\dots$

(a) 5

(b) 3

(c) 1

(d) 0

6 The probability of the impossible event is $\dots\dots\dots$

(a) 1

(b) 0

(c) 0.5

(d) 75 %

2 Complete the following :**1** If $2^x = 3$, then $8^x = \dots\dots\dots$ **2** $\sqrt{25 - 4^2} = \dots\dots\dots$ **3** Quarter of the number 4^{20} is $\dots\dots\dots$

- 4 The S.S. of the equation : $x^2 - 25 = 0$ in \mathbb{R} is
- 5 If the expression : $x^2 + 4x + a$ is a perfect square , then $a =$
- 6 The age of a man now is x years , then his age after 7 years is years.

3 [a] Factorize the following :

1 $x^3 + 8$

2 $x^2 + 5x + 6$

[b] Find in \mathbb{R} the S.S. of the equation : $3x^2 + 10x + 8 = 0$

4 [a] Simplify : $\frac{(\sqrt{3})^3 \times 2^3}{2 \times (\sqrt{3})^7}$

[b] If $3^{x-2} = 81$, find : the value of x

5 [a] Factorize the following :

1 $x^2 + 14x + 49$

2 $ax - 7a + 3x - 21$

[b] A box contains 2 red balls , 3 white balls , 5 blue balls. A ball is drawn randomly.
Find the probability of getting :

1 A white ball.

2 A non red ball.

3 A yellow ball.

12

Aswan Governorate



The Educational Directorate
General Maths Supervision

Answer the following questions :

1 Choose the correct answer from those given :

1 If $\left(\frac{5}{3}\right)^x = \left(\frac{3}{5}\right)^2$, then $x =$

(a) -2

(b) $-\frac{1}{2}$

(c) 2

(d) $\frac{1}{2}$

2 If $3^x = 81$, then $x =$

(a) 1

(b) 2

(c) 3

(d) 4

3 $\sqrt{100 - 64} = 10 -$

(a) 6

(b) 4

(c) 8

(d) 36

4 If the expression : $x^2 + kx + 36$ is a perfect square , then $k =$

(a) ± 6

(b) ± 8

(c) ± 12

(d) ± 18

5 If third of a number is 6 , then this number is

(a) 2

(b) 9

(c) 12

(d) 18

6 The solution set of the equation : $x^2 - 9 = 0$ in \mathbb{Q} is

- (a) $\{3\}$ (b) $\{-3\}$ (c) $\{-3, 3\}$ (d) \emptyset

2 Complete :

- 1 The probability of the certain event is
 2 If $x - y = 2$, $x + y = 4$, then $x^2 - y^2 =$
 3 If $3^x = 27$, $4^{x+y} = 1$, then $y =$
 4 If $2^x = 3$, then $8^x =$
 5 If the age of a man now is x years , then his age after 5 years is years.
 6 $x^3 - 8 = (\dots\dots\dots)(x^2 + 2x + \dots\dots\dots)$

3 [a] Factorize each of the following :

- 1 $x^2 - 8x + 15$ 2 $x^3 + 27$

[b] If $\frac{8^x \times 9^x}{18^x} = 16$, find : the value of x

4 [a] A rectangle with a length more than its width by 4 cm.

If its area is 21 cm^2 , find its dimensions.

[b] If $a = \sqrt[3]{3}$, $b = \sqrt[3]{2}$, find the numerical value of : $\frac{a^4 - b^4}{a^2 - b^2}$

5 [a] Factorize each of the following :

- 1 $2x^2 + 7x + 3$ 2 $*x^4 + 64y^4$

[b] A bag contains some of similar balls , 5 of them are white , 7 balls are red and 8 balls are blue. If a ball is randomly drawn , find the probability that the drawn ball is not white.

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Answers of the schools examinations on Algebra and Statistics

1 Cairo

- 1 (1) (c) (2) (a) (3) (c)
 (4) (c) (5) (b) (6) (c)
- 2 (1) $a^2 + 6$ (2) $X + m$ (3) $\{0, -3\}$
 (4) -3 (5) 35 (6) zero

- 3
 (1) $(2X - 3)(2X + 3)$
 (2) $X^4 + 4X^2y^2 + 4y^4 - 4X^2y^2$
 $= (X^2 + 2y^2)^2 - 4X^2y^2$
 $= (X^2 + 2y^2 + 2Xy)(X^2 + 2y^2 - 2Xy)$
 (3) $(X + 2)(X^2 - 2X + 4)$
 (4) $(X - 3)(X + 2)$

- 4
 [a] Let the number be X
 $\therefore X + X^2 = 12$
 $\therefore X^2 + X - 12 = 0$
 $\therefore (X + 4)(X - 3) = 0$
 $\therefore X = -4$ or $X = 3$
 \therefore The number is -4 or 3
- [b] $\therefore \frac{3^{2X} \times 3^{2X}}{3^{3X}} = 3^2$
 $\therefore 3^{2X+2X-3X} = 3^2$
 $\therefore 3^X = 3^2 \quad \therefore X = 2$

- 5
 [a] (1) The probability of getting a white ball $= \frac{3}{10}$
 (2) The probability of getting a non red ball
 $= \frac{3+5}{10} = \frac{8}{10} = \frac{4}{5}$
 (3) The probability of getting a yellow ball
 $= \frac{0}{10} = \text{zero}$
 (4) The probability of getting a red or blue ball
 $= \frac{2+5}{10} = \frac{7}{10}$
- [b] $\therefore 3^{X-4} = 3^2 \quad \therefore X - 4 = 2$
 $\therefore X = 6$
 \therefore The S.S. $= \{6\}$

2 Cairo

- 1 (1) (a) (2) (a) (3) (c)
 (4) (b) (5) (c) (6) (c)
- 2 (1) $\{0, 3\}$ (2) $X - m$ (3) 2
 (4) 4 (5) 75 (6) 49

- 3
 [a] (1) $a(X - 7) + 3(X - 7) = (X - 7)(a + 3)$
 (2) $(5X + 4)(2X - 3)$
 [b] $\therefore X^2 - y^2 = (X + y)(X - y)$
 $\therefore 12 = 6(X - y) \quad \therefore X - y = 2$
 $\therefore X^3 - y^3 = (X - y)(X^2 + Xy + y^2)$
 $\therefore X^3 - y^3 = 2 \times 28 = 56$

- 4
 [a] $\therefore X^2 - 8X + 15 = 0$
 $\therefore (X - 3)(X - 5) = 0$
 $\therefore X = 3$ or $X = 5$
 \therefore The S.S. $= \{3, 5\}$
- [b] $\frac{3^{2X+1} \times (5^2)^X}{(3 \times 5)^{2X}} = \frac{3^{2X+1} \times 5^{2X}}{3^{2X} \times 5^{2X}} = 3^{2X+1-2X} = 3$
- 5
 [a] $\therefore \left(\frac{2}{5}\right)^{X+1} = \left(\frac{2}{5}\right)^3$
 $\therefore X + 1 = 3 \quad \therefore X = 2$

- [b] (1) The probability that the number on the drawn card is even $= \frac{7}{15}$
 (2) The probability that the number on the drawn card is divisible by 5 $= \frac{3}{15} = \frac{1}{5}$

3 Giza

- 1 (1) (a) (2) (d) (3) (b)
 (4) (c) (5) (d) (6) (c)
- 2 (1) $\sqrt{5}$ (2) $(5X - 7)$ (3) \emptyset
 (4) $\frac{1}{6}$ (5) 5 (6) $8 + 2X + 4$

3

[a] $\therefore \left(\frac{3}{5}\right)^x = \left(\frac{3}{5}\right)^3 \therefore x = 3$

[b] $\therefore x^2 - 5x - 14 = 0$
 $\therefore (x-7)(x+2) = 0$
 $\therefore x = 7 \text{ or } x = -2$
 $\therefore \text{The S.S.} = \{7, -2\}$

4

[1] $2(x^2 - 4) = 2(x-2)(x+2)$

[2] $(x-3)(x+2)$

[3] $(2x-3)(2x+3)$

5

[a] a $(x-7) + 3(x-7) = (x-7)(a+3)$

[b] [1] The probability of the selected ball is white
 $= \frac{2}{10} = \frac{1}{5}$

[2] The probability of the selected ball is not red
 $= \frac{2+5}{10} = \frac{7}{10}$

[3] The probability of the selected ball is black
 $= \frac{0}{10} = \text{zero}$

4

Giza

[1] [1] 25, 4 y

[2] $(x-2)$

[3] 3^3

[4] 0, 1

[5] $\frac{1}{25}$

[6] 1

[2] [1] (a)

[2] (a)

[3] (d)

[4] (c)

[5] (d)

[6] (d)

3

[a] [1] $(x-6)^2$

[2] $(x-3)(x^2 + 3x + 9)$

[3] a $(x-7) + 3(x-7) = (x-7)(a+3)$

[4] 81 $x^4 + 36x^2z^2 + 4z^4 - 36x^2z^2$
 $= (9x^2 + 2z^2)^2 - 36x^2z^2$
 $= (9x^2 + 2z^2 - 6xz)(9x^2 + 2z^2 + 6xz)$
 $= (9x^2 - 6xz + 2z^2)(9x^2 + 6xz + 2z^2)$

[b] $\therefore 3^x = 3^3 \therefore x = 3$

$\therefore 4^{x+y} = 1 \therefore 4^{3+y} = 1$

$\therefore 3 + y = 0 \therefore y = -3$

4

[a] [1] The probability of that card carries an odd number $= \frac{5}{9}$

[2] The probability of that card carries a number divisible by 3 $= \frac{3}{9} = \frac{1}{3}$

[b] $(\sqrt{2})^{5-3} \times (3)^{-2+1} = (\sqrt{2})^2 \times (3)^{-1} = \frac{2}{3}$

5

[a] $\therefore x^2 + 8x - 9 = 0$

$\therefore (x+9)(x-1) = 0$

$\therefore x = -9 \text{ or } x = 1$

$\therefore \text{The S.S.} = \{-9, 1\}$

[b] $\left(\frac{x}{y}\right)^{-2} = \left(\frac{3}{\sqrt{2}}\right)^{-2} = \left(\frac{\sqrt{2}}{3}\right)^2 = \frac{2}{9}$

5

Alexandria

[1] [1] (c)

[2] (d)

[3] (c)

[4] (b)

[5] (a)

[6] (b)

[2] [1] 64

[2] 8

[3] -9

[4] 1

[5] 2

[6] 60

3

[1] $x(x^2 + 7x + 12) = x(x+3)(x+4)$

[2] $(x+3y)^2 - 49a^2 = (x+3y-7a)(x+3y+7a)$

[3] $2(x^3 - 8) = 2(x-2)(x^2 + 2x + 4)$

[4] $(5-x)(5+x)$

4

[a] Let the integer be x

$\therefore x^2 + 3x = 18 \therefore x^2 + 3x - 18 = 0$

$\therefore (x+6)(x-3) = 0$

$\therefore x = -6 \text{ (refused) or } x = 3$

$\therefore \text{The integer is : 3}$

[b] $\therefore (2^2)^{x-1} = 2^3$

$\therefore 2^{2x-2} = 2^3 \therefore 2x-2 = 3$

$\therefore 2x = 5 \therefore x = \frac{5}{2}$

5

[a] [1] The probability of drawing a card carrying an odd number $= \frac{15}{30} = \frac{1}{2}$

[2] The probability of drawing a card carrying a number divisible by 5 $= \frac{6}{30} = \frac{1}{5}$



- 3 The probability of drawing a card carrying a perfect square = $\frac{5}{30} = \frac{1}{6}$

[b] $\frac{(2^2)^x \times (3^3)^x}{(2 \times 3)^{2x}} = \frac{2^{2x} \times 3^{3x}}{2^{2x} \times 3^{2x}} = 1$

6 El-Kalyoubia

- 1 1 (b) 2 (d) 3 (c)
4 (b) 5 (c) 6 (a)

- 2 1 8 2 14 3 -24
4 -5 5 7^0 6 1

3

[a] 1 $x(x-5)$

2 $(x-8)(x+1)$

3 $a(x-7) + 3(x-7) = (x-7)(a+3)$

4 $x^4 + 4 + 4x^2 - 4x^2 = (x^4 + 4x^2 + 4) - 4x^2$
 $= (x^2 + 2)^2 - 4x^2 = (x^2 + 2 - 2x)(x^2 + 2 + 2x)$
 $= (x^2 - 2x + 2)(x^2 + 2x + 2)$

[b] $\frac{2^x \times (3^2)^{x+1}}{(2 \times 3^2)^x} = \frac{2^x \times 3^{2x+2}}{2^x \times 3^{2x}} = 3^{2x+2-2x} = 3^2 = 9$

4

[a] $\therefore x^2 - 8x + 12 = 0$

$\therefore (x-2)(x-6) = 0$

$\therefore x = 2$ or $x = 6$

\therefore The S.S. = $\{2, 6\}$

[b] $\therefore \left(\frac{3}{2}\right)^{x-4} = \frac{9}{4}$ $\therefore \left(\frac{3}{2}\right)^{x-4} = \left(\frac{3}{2}\right)^2$

$\therefore x - 4 = 2$

$\therefore x = 6$

5

- [a] \therefore The expression : $x^2 + a x - 6$ can be factorized
 \therefore a should be the sum of two numbers their product = -6

$\therefore -6 = -1 \times 6, 1 \times -6, 2 \times -3$ or -2×3

$\therefore a = -1 + 6 = 5, a = 1 + (-6) = -5$

$\therefore a = 2 + (-3) = -1$ or $a = -2 + 3 = 1$

$\therefore 5, -5, -1$ and 1 which are the possible value of a

- [b] 1 The probability that the drawn card carries a prime number = $\frac{4}{10} = \frac{2}{5}$

- 2 The probability that the drawn card carries a number greater than 7 = $\frac{3}{10}$

7 El-Monofia

- 1 1 (b) 2 (d) 3 (b)
4 (b) 5 (a) 6 (c)

- 2 1 7 2 zero 3 2
4 $\{0, 3\}$ 5 $x-4$ 6 0.2

3

[a] 1 $(x-5)(x+5)$

2 $(2x+7)(x-1)$

[b] $\therefore \left(\frac{3}{4}\right)^{x+1} = \left(\frac{3}{4}\right)^2$

$\therefore x + 1 = 2$

$\therefore x = 1$

$\therefore \left(\frac{2}{5}\right)^{2-1} = \frac{2}{5}$

4

[a] 1 $(x+2)(x^2 - 2x + 4)$

2 $xy + 7x + 3y + 21$

$= x(y+7) + 3(y+7) = (y+7)(x+3)$

[b] $\frac{3^{2n} \times 3^{n+2}}{3^{3n}} = 3^{2n+n+2-3n} = 3^2 = 9$

5

[a] $\therefore x^2 - 7x + 12 = 0$

$\therefore (x-4)(x-3) = 0$

$\therefore x = 4$ or $x = 3$

\therefore The S.S. = $\{4, 3\}$

- [b] 1 The probability that the drawn ball is white = $\frac{5}{12}$

- 2 The probability that the drawn ball is red or blue = $\frac{3+4}{12} = \frac{7}{12}$

- 3 The probability that the drawn ball is green = $\frac{0}{12} = \text{zero}$

8 El-Gharbia

- 1 1 (a) 2 (d) 3 (b)
4 (c) 5 (d) 6 (d)

- 2 1 \emptyset 2 -8 3 25
4 1 5 $8x^3 - 27y^3$ 6 $\frac{1}{2}$

3

$$\begin{aligned} \text{[a]} \quad \frac{(2^3)^{X+1} \times (3^3)^{2-X}}{(2 \times 3)^{2X}} &= \frac{2^{3X+3} \times 3^{4-2X}}{2^{2X} \times 3^{2X}} \\ &= 2^{3X+2-2X} \times 3^{4-2X-2X} \\ &= 2^2 \times 3^{4-4X} \end{aligned}$$

when $X = 1$

$$\therefore 4 \times 3^{4-4 \times 1} = 4 \times 3^{4-4} = 4 \times 1 = 4$$

$$\text{[b]} \quad \therefore X^2 - 3X - 10 = 0$$

$$\therefore (X+2)(X-5) = 0$$

$$\therefore X = -2 \text{ or } X = 5$$

$$\therefore \text{The S.S.} = \{-2, 5\}$$

4

$$\text{[1]} \quad (X-6)^2$$

$$\text{[2]} \quad (2X+1)(X+3)$$

$$\text{[3]} \quad (8X-y)(64X^2+8Xy+y^2)$$

$$\begin{aligned} \text{[4]} \quad X^4 + 16X^2 + 64 - 16X^2 \\ &= (X^2+8)^2 - 16X^2 = (X^2+8-4X)(X^2+8+4X) \\ &= (X^2-4X+8)(X^2+4X+8) \end{aligned}$$

5

$$\text{[a]} \quad \therefore 3^{X-2} = 3^4 \quad \therefore X-2 = 4$$

$$\therefore X = 6$$

$$\text{[b]} \quad \text{[1]} \quad \text{The probability that the drawn ball is red} = \frac{4}{15}$$

$$\text{[2]} \quad \text{The probability that the drawn ball is white} = \frac{6}{15} = \frac{2}{5}$$

$$\text{[3]} \quad \text{The probability that the drawn ball is non green} = \frac{4+6}{15} = \frac{10}{15} = \frac{2}{3}$$

9

Suez

$$\text{[1]} \quad \text{[1]} \quad \text{(a)}$$

$$\text{[2]} \quad \text{(b)}$$

$$\text{[3]} \quad \text{(c)}$$

$$\text{[4]} \quad \text{(c)}$$

$$\text{[5]} \quad \text{(c)}$$

$$\text{[6]} \quad \text{(d)}$$

$$\text{[2]} \quad \text{[1]} \quad 3$$

$$\text{[2]} \quad 2^8$$

$$\text{[3]} \quad 20$$

$$\text{[4]} \quad 10^2 = 100$$

$$\text{[5]} \quad 0.4$$

$$\text{[6]} \quad \{0, 2, -3\}$$

3

$$\text{[1]} \quad (X-9)(X+9)$$

$$\text{[2]} \quad (X-3)(X^2+3X+9)$$

$$\text{[3]} \quad (2X+5)(X-3)$$

$$\text{[4]} \quad a(X-7)+3(X-7)=(X-7)(a+3)$$

4

$$\begin{aligned} \text{[a]} \quad \therefore X^2 - 8X + 12 = 0 \quad \therefore (X-2)(X-6) = 0 \\ \therefore X = 2 \text{ or } X = 6 \quad \therefore \text{The S.S.} = \{2, 6\} \end{aligned}$$

$$\text{[b]} \quad \frac{3^{2X} \times 3^{X+2}}{3^{3X}} = 3^{2X+X+2-3X} = 3^2 = 9$$

5

$$\text{[a]} \quad \therefore 3^X = 3^3 \quad \therefore X = 3$$

$$\therefore 5^{X+y} = 1 \quad \therefore X+y = 0$$

$$\therefore 3+y = 0 \quad \therefore y = -3$$

$$\text{[b]} \quad \text{[1]} \quad \text{The probability that the drawn ball is a white ball} = \frac{8}{20} = \frac{2}{5}$$

$$\text{[2]} \quad \text{The probability that the drawn ball is a red ball} = \frac{2}{20} = \frac{1}{10}$$

$$\text{[3]} \quad \text{The probability that the drawn ball is a yellow ball} = \frac{0}{20} = \text{zero}$$

$$\text{[4]} \quad \text{The probability that the drawn ball is a non red ball} = \frac{8+10}{20} = \frac{18}{20} = \frac{9}{10}$$

10

El-Beheira

$$\text{[1]} \quad \text{[1]} \quad \text{(b)}$$

$$\text{[2]} \quad \text{(c)}$$

$$\text{[3]} \quad \text{(c)}$$

$$\text{[4]} \quad \text{(d)}$$

$$\text{[5]} \quad \text{(b)}$$

$$\text{[6]} \quad \text{(c)}$$

$$\text{[2]} \quad \text{[1]} \quad \frac{1}{6}$$

$$\text{[2]} \quad \text{fourth}$$

$$\text{[3]} \quad 3$$

$$\text{[4]} \quad 8$$

$$\text{[5]} \quad 1$$

$$\text{[6]} \quad 16$$

3

$$\text{[1]} \quad 2(4X^2 - 12Xy + 9y^2) = 2(2X-3y)^2$$

$$\text{[2]} \quad y(X-7)+3(X-7)=(X-7)(y+3)$$

$$\text{[3]} \quad (X-12)(X+2)$$

$$\text{[4]} \quad (2X-3)(X+2)$$

4

$$\text{[a]} \quad \therefore X^2 - 9X - 36 = 0$$

$$\therefore (X+3)(X-12) = 0$$

$$\therefore X = -3 \text{ or } X = 12$$

$$\therefore \text{The S.S.} = \{-3, 12\}$$

$$\text{[b]} \quad \text{[1]} \quad (\sqrt[4]{7})^{-4-3+9} = (\sqrt[4]{7})^2 = 7$$

$$\begin{aligned} \text{[2]} \quad \frac{2^{2n+1} \times 5^{2n+1}}{(2 \times 5)^{2n}} &= \frac{2^{2n+1} \times 5^{2n+1}}{2^{2n} \times 5^{2n}} \\ &= 2^{2n+1-2n} \times 5^{2n+1-2n} \\ &= 2 \times 5 = 10 \end{aligned}$$



Another solution :

$$\frac{2^{2n+1} \times 5^{2n+1}}{10^{2n}} = \frac{10^{2n+1}}{10^{2n}} = 10^{2n+1-2n} = 10$$

5

[a] $1) X^2 y^4 = (3)^2 \times (\sqrt{2})^4 = 9 \times 4 = 36$

$2) \left(\frac{X}{y}\right)^{-2} = \left(\frac{3}{\sqrt{2}}\right)^{-2} = \left(\frac{\sqrt{2}}{3}\right)^2 = \frac{2}{9}$

[b] $1) \text{The probability of getting a green ball} = \frac{8}{20} = \frac{2}{5}$

$2) \text{The probability of getting a ball not yellow}$
 $= \frac{7+8}{20} = \frac{15}{20} = \frac{3}{4}$

$3) \text{The probability of getting a red ball} = \frac{7}{20}$

$4) \text{The probability of getting a blue ball} = \frac{0}{20} = \text{zero}$

11

El-Menia

1) $1) (d)$

$2) (b)$

$3) (b)$

$4) (c)$

$5) (d)$

$6) (b)$

2) $1) 27$

$2) 3$

$3) 4^{19}$

$4) \{5, -5\}$

$5) 4$

$6) X+7$

3

[a] $1) (X+2)(X^2-2X+4)$

$2) (X+3)(X+2)$

[b] $\therefore 3X^2 + 10X + 8 = 0$

$\therefore (3X+4)(X+2) = 0 \quad \therefore X = -\frac{4}{3} \text{ or } X = -2$

$\therefore \text{The S.S.} = \left\{-\frac{4}{3}, -2\right\}$

4

[a] $\left(\sqrt{3}\right)^{3-7} \times 2^{3-1} = \left(\sqrt{3}\right)^{-4} \times 2^2$

$$= \frac{1}{(\sqrt{3})^4} \times 4 = \frac{1}{9} \times 4 = \frac{4}{9}$$

[b] $\therefore 3^{X-2} = 3^4$

$\therefore X-2=4$

$\therefore X=6$

5

[a] $1) (X+7)^2$

$2) a(X-7) + 3(X-7) = (X-7)(a+3)$

[b] $1) \text{The probability of getting a white ball} = \frac{3}{10}$

$2) \text{The probability of getting a non red ball}$

$$= \frac{3+5}{10} = \frac{8}{10} = \frac{4}{5}$$

$3) \text{The probability of getting a yellow ball}$

$$= \frac{0}{10} = \text{zero}$$

12

Aswan

1) $1) (a)$

$2) (d)$

$3) (b)$

$4) (c)$

$5) (d)$

$6) (c)$

2) $1) 1$

$2) 8$

$3) -3$

$4) 27$

$5) X+5$

$6) X-2+4$

3

[a] $1) (X-3)(X-5)$

$2) (X+3)(X^2-3X+9)$

[b] $\therefore \frac{(2^3)^X \times (3^2)^X}{(2 \times 3^2)^X} = 2^4$

$$\therefore \frac{2^{3X} \times 3^{2X}}{2^X \times 3^{2X}} = 2^4$$

$$\therefore 2^{3X-X} = 2^4$$

$$\therefore 2^{2X} = 2^4$$

$$\therefore 2X = 4$$

$$\therefore X = 2$$

4

[a] Let the length be X , then the width is $X-4$

$$\therefore X(X-4) = 21$$

$$\therefore X^2 - 4X - 21 = 0$$

$$\therefore (X+3)(X-7) = 0$$

$$\therefore X = -3 \text{ (refused) or } X = 7$$

$$\therefore \text{The length is 7 cm. and the width is 3 cm.}$$

[b] $\frac{a^4 - b^4}{a^2 - b^2} = \frac{(\sqrt{3})^4 - (\sqrt{2})^4}{(\sqrt{3})^2 - (\sqrt{2})^2} = \frac{9-4}{3-2} = 5$

5

[a] $1) (2X+1)(X+3)$

$2) X^4 + 16X^2y^2 + 64y^4 - 16X^2y^2$

$$= (X^2 + 8y^2)^2 - 16X^2y^2$$

$$= (X^2 + 8y^2 - 4Xy)(X^2 + 8y^2 + 4Xy)$$

$$= (X^2 - 4Xy + 8y^2)(X^2 + 4Xy + 8y^2)$$

[b] The probability that the drawn ball is not white

$$= \frac{7+8}{20} = \frac{15}{20} = \frac{3}{4}$$

حمل الآن

مجانا وحصريا

امتحانات رقم (3)

الترم الثاني





1

Cairo Governorate

El-Nozha Zone
Math Supervision

Answer the following questions :

1 Choose the correct answer :

1 $\sqrt{25 \times 9} = \dots\dots\dots$

(a) 7

(b) 15

(c) 16

(d) 225

2 The probability of the impossible event equals

(a) 1

(b) -1

(c) zero

(d) 0.5

3 If $2^X = 3$, then $8^X = \dots\dots\dots$

(a) 3

(b) 9

(c) 27

(d) 81

4 If $X^2 - y^2 = 12$, $X + y = 4$, then $X - y = \dots\dots\dots$

(a) 3

(b) 16

(c) 8

(d) 2

5 The expression : $4X^2 + kX + 9$ is a perfect square, when $k = \dots\dots\dots$

(a) ± 6

(b) 6

(c) ± 12

(d) 12

2 Complete :

1 $X^3 - \dots\dots\dots = (X - 2)(\dots\dots\dots + 2X + 4)$

2 Quarter of the number $4^{20} = \dots\dots\dots$

3 The multiplicative inverse of $2^{-3} = \dots\dots\dots$

4 $(-\sqrt{3})^{\text{zero}} = \dots\dots\dots$

5 If $\left(\frac{7}{3}\right)^X = \left(\frac{3}{7}\right)^3$, then $X = \dots\dots\dots$

3 Factorize each of the following :

1 $X^2 - 81$

2 $aX - 7a + 3X - 21$

3 $8X^3 + 1$

4 $2X^2 - X - 15$

4 [a] Find in \mathbb{R} the S.S. of the equation : $X^2 - X = 12$

[b] Simplify to the simplest form : $\frac{(\sqrt{3})^5 \times 2^3}{2 \times (\sqrt{3})^7}$

5 [a] If $3^{x-2} = 81$, find : the value of x

[b] A bag contains a number of similar balls, 4 red balls, 6 white balls and 5 green balls.
A ball is drawn randomly.

Find the probability of the drawn ball is :

1 Red.

2 Not green.

3 White.

2

Cairo Governorate



El-Zeiton Zone

Talaea Gaber El-Ansary Language School

Answer the following questions :

1 Complete :

1 If $3^{x-4} = 1$, then $x = \dots\dots\dots$

2 The S.S. of $x^2 - 25 = 0$ in \mathbb{R} is $\dots\dots\dots$

3 If the probability of success of a student is 0.7, then the probability of his failure is $\dots\dots\dots$

4 If $3^x = 27$, then $x = \dots\dots\dots$

5 The probability of the impossible event is $\dots\dots\dots$

2 Choose :

1 The S.S. of $x^2 - 3x = 0$ in \mathbb{R} is $\dots\dots\dots$

(a) $\{0\}$

(b) \emptyset

(c) $\{0, 3\}$

(d) $\{3\}$

2 If $\left(\frac{5}{3}\right)^x = \left(\frac{3}{5}\right)^2$, then $x = \dots\dots\dots$

(a) -2

(b) 2

(c) $\frac{1}{2}$

(d) $-\frac{1}{2}$

3 If $x^2 + 8x + a$ is a perfect square, then $a = \dots\dots\dots$

(a) -4

(b) 4

(c) 8

(d) 16

4 If the age of Ali now is x years, then his age 3 years ago is $\dots\dots\dots$ years.

(a) $x + 3$

(b) $3x$

(c) $x - 3$

(d) $6x$

5 $3^3 + 3^3 + 3^3 = \dots\dots\dots$

(a) 3^3

(b) 3^4

(c) 3^{12}

(d) 3^{81}

3 [a] If $\frac{8^x \times 9^x}{18^x} = 64$, find : x

[b] Find in \mathbb{R} the S.S. of the equation : $x^2 - 1 = 8$

4 Factorize each of the following :

1 $4x^2 - 9$

2 $x^3 + 8$

3 $x^2 - x - 6$

4 $ax - 7a + 3x - 21$

5 [a] A box contains 2 red balls , 3 white balls and 5 blue balls. A ball is drawn randomly.**Find the probability of getting :****1** A white ball.**2** A non red ball.**3** A yellow ball.**4** A red or blue ball.**[b]** If $3^{x-4} = 9$, find the S.S. in \mathbb{R} **3****Giza Governorate**

Inspection of Math

*Answer the following questions :***1 Choose the correct answer :****1** The expression : $x^2 + kx + 36$ is a perfect square when $k = \dots\dots\dots$ (a) ± 6 (b) ± 8 (c) ± 12 (d) ± 18 **2** If $7^{x+2} = 1$, then $x = \dots\dots\dots$

(a) 1

(b) -2

(c) 2

(d) 7

3 If a regular die is tossed once , then the probability of appearing an even number equals $\dots\dots\dots$ (a) $\frac{1}{2}$ (b) $\frac{1}{6}$ (c) $\frac{5}{6}$

(d) 0

4 $3^2 \times 2^2 = \dots\dots\dots$ (a) 5^2 (b) 5^4 (c) 6^4 (d) 6^2 **5** If $\frac{a}{b} = 1$, then $3a - 3b = \dots\dots\dots$

(a) zero

(b) 1

(c) 4

(d) 8

2 Complete the following :**1** $(a - 3)(a - 2) = \dots\dots\dots - 5a + \dots\dots\dots$ **2** If $3^{x-1} = 27$, then $x = \dots\dots\dots$ **3** If a coin is thrown once , then the probability of appearing a tail equals $\dots\dots\dots$ **4** $x(y - z) + m(y - z) = (y - z)(\dots\dots\dots)$ **5** The S.S. of the equation : $x^2 + 3x = 0$ in \mathbb{R} is $\dots\dots\dots$

3 [a] Factorize each of the following :

1 $x^2 - 4y^2$

2 $x^3 + 8$

[b] Simplify : $\frac{4^x \times 9^x}{6^{2x}}$

4 [a] Find in \mathbb{R} the S.S. of the equation : $x^2 + x = 6$ **[b] Factorize each of the following :**

1 $x^2 + 14x + 49$

2 $ax - 7a + 3x - 21$

5 [a] If the probability of choosing a boy from a class of 40 students is 0.6, find the number of girls in this class.

[b] If $x^3 y^{-3} = 8$, find : $\frac{x}{y}$

4**Giza Governorate****6th October Directorate***Answer the following questions :***1 Complete :**

1 The probability of the impossible event is

2 The S.S. of the equation : $x^2 + 1 = 0$ in \mathbb{R} is

3 $(\sqrt{5})^3 \div 5\sqrt{5} = \dots\dots\dots$

4 If $3^x = 5$, then $(27)^x = \dots\dots\dots$

5 The age of a man now is x years, then his age 7 years ago is years.

2 Choose the correct answer :

1 Fifth of 5^{20} is

(a) 5^{15}

(b) 5^{10}

(c) 5^{19}

(d) 5^{40}

2 $\mathbb{R}^+ \cap \mathbb{R}^- = \dots\dots\dots$

(a) 0

(b) \emptyset

(c) $\{0\}$

(d) \mathbb{R}

3 If $x^2 + kx + 25$ is a perfect square, then $k = \dots\dots\dots$

(a) 5

(b) 10

(c) ± 10

(d) ± 5

4 If $x^3 + 27 = (x + 3)(x^2 + k + 9)$, then $k = \dots\dots\dots$

(a) $-6x$

(b) $-3x$

(c) $3x$

(d) $6x$

5 If $7^{x-3} = 5^{x-3}$, then $x = \dots\dots\dots$

(a) 5

(b) 7

(c) 3

(d) 0

3 [a] Factorize each of the following :

1 $x^2 - 16$

2 $5x + 10y + ax + 2ay$

3 $x^4 + 4y^4$

[b] A real number if you add it to its square , the result is 12 , find the number.**4 [a] Find the S.S. of the equation in \mathbb{R} :**

1 $3x^2 + 15x - 18 = 0$

2 $x^3 - 9x = 0$

[b] If $\frac{9^x \times 3^{2x}}{27^x} = 9$, **find** : the value of x **5 [a] Simplify : $\frac{4^x \times 6^{2x}}{2^{2x} \times 3^{2x}}$ and find the value when $x = 2$** **[b]** A box contains 5 white , 2 red , 3 green balls. One ball is drawn randomly from the box.**Calculate the probability of each of the following :****1** The ball is white.**2** The ball is not red.**5****Alexandria Governorate**East Educational Zone
Math Supervision*Answer the following questions :***1 Choose the correct answer :****1** The expression : $x^2 + 6x + k$ is a perfect square when $k = \dots\dots\dots$

(a) 3

(b) 6

(c) 9

(d) 36

2 $2^2 \times 5^2 = \dots\dots\dots$ (a) 10^2 (b) 10^3 (c) 10^5 (d) 10^6 **3** $\frac{3}{4} = \dots\dots\dots \%$

(a) 50

(b) 25

(c) 100

(d) 75

4 If $5^{x-2} = 1$, then $x = \dots\dots\dots$

(a) zero

(b) 1

(c) 2

(d) 5

5 $(x+3)(x-3) = \dots\dots\dots$ (a) $x^2 - 3$ (b) $x^2 - 9$ (c) $x^2 + 9$ (d) $x + 3$ **2 Complete :****1** If $a + b = 4$, $a - b = 3$, then $a^2 - b^2 = \dots\dots\dots$

2 $5^{-3} = \dots\dots\dots$

3 If $\frac{3}{5} = \frac{15}{x}$, then $x = \dots\dots\dots$

4 The S.S. of the equation : $x^2 + 5 = 0$ in \mathbb{R} is $\dots\dots\dots$

5 If $\left(\frac{5}{3}\right)^x = \frac{27}{125}$, then $x = \dots\dots\dots$

3 [a] Factorize :

1 $2x^2 + 7x + 3$

2 $x^3 - 8$

[b] Simplify to the simplest form : $\frac{4^n \times 6^{2n}}{2^{4n} \times 3^{2n}}$

4 [a] Find the S.S. for each of the following where $x \in \mathbb{R}$:

1 $x^2 - 8x + 12 = 0$

2 $9x^2 - 16 = 0$

[b] If $x = 3$, $y = \sqrt{2}$, find in the simplest form the value of :

1 $x^{-2}y^{-4}$

2 $\left(\frac{x}{y}\right)^{-1}$

5 [a] Find the value of x if : $\left(\frac{2}{5}\right)^{2x-1} = \frac{8}{125}$

[b] A regular die is thrown once. Find the probability of each of the following events :

1 Appearance of a number divisible by 7

2 Appearance of a prime number.

6

El-Kalyoubia Governorate



Math Supervision

Answer the following questions :

1 Choose the correct answer :

1 If the expression : $x^2 + kx + 36$ is a perfect square, then $k = \dots\dots\dots$

(a) ± 6

(b) ± 8

(c) ± 12

(d) ± 18

2 If $\left(\frac{5}{3}\right)^x = \frac{27}{125}$, then $x = \dots\dots\dots$

(a) -5

(b) -3

(c) 3

(d) 5

3 If $x^3 - y^3 = 26$ and $x^2 + xy + y^2 = 13$, then $x - y = \dots\dots\dots$

(a) 2

(b) 4

(c) 12

(d) 39

4 The S.S. of the equation : $x^2 + 25 = 0$ in \mathbb{R} is $\dots\dots\dots$

(a) $\{5\}$

(b) $\{-5\}$

(c) $\{5, -5\}$

(d) \emptyset

- 5 If X is the additive identity element and y is the multiplicative identity element , then $2^X + 3^y = \dots\dots\dots$

(a) 5 (b) 4 (c) 3 (d) 2

2 Complete each of the following :

- 1 If $2^{X+3} = 1$, then $X = \dots\dots\dots$
- 2 If $(X + 2)$ is one of the factors of the expression : $X^2 + 7X + 10$, then the other factor is $\dots\dots\dots$
- 3 If the age of Salma now is X years old , then her age after 3 years is $\dots\dots\dots$ years old.
- 4 If the probability of a student succeeds is 0.6 , then the probability of his failure is $\dots\dots\dots$
- 5 The solution set of the equation : $X(X - 3)(X + 5) = 0$ in \mathbb{R} is $\dots\dots\dots$

3 [a] Find the S.S. of the equation in \mathbb{R} : $X^2 - 9X + 14 = 0$

- [b] Simplify to the simplest form : $\frac{9^{X+1} \times 4^X}{6^{2X}}$

4 Factorize each of the following perfectly :

- 1 $4X^2 - 25$ 2 $3X^2 - 7X - 6$
- 3 $aX - 7a + 3X - 21$ 4 $2X^3 + 16$

5 [a] If $2^{X-1} = 32$ and $3^y = \frac{1}{9}$, find : $X + y$

- [b] A box has 4 red balls , 3 white balls , 5 yellow balls. If a ball is drawn randomly , calculate the probability of the ball is :

1 Red. 2 Not white.

7 El-Sharkia Governorate



Menya Al-Qamh Educational Admin.
Menya Al-Qamh Language School

Answer the following questions :

1 Choose the correct answer from those given :

- 1 $2^{-3} = \dots\dots\dots$
- (a) -8 (b) $\frac{1}{2}$ (c) $\frac{1}{8}$ (d) 9
- 2 The solution set of the equation : $X^2 + 36 = 0$ in \mathbb{R} is $\dots\dots\dots$
- (a) $\{6\}$ (b) $\{-6\}$ (c) $\{6, -6\}$ (d) \emptyset

3 $3^4 + 3^4 + 3^4 = \dots\dots\dots$

- (a) 3^{12} (b) 3^4 (c) 3^5 (d) 3^6

4 The expression : $4X^2 + kX + 9$ is a perfect square if $k = \dots\dots\dots$

- (a) 2 (b) 4 (c) 8 (d) 12

5 If $3^X = 5$, then $3^{X+2} = \dots\dots\dots$

- (a) 5 (b) 10 (c) 45 (d) 50

2 Complete each of the following :

1 If $7^X = 1$, then $X = \dots\dots\dots$

2 If $3^X = 7$, then $3^{-X} = \dots\dots\dots$

3 $3 \times 6 - 9 \div 3 = \dots\dots\dots$

4 If $X - y = 5$ and $X + y = 7$, then $X^2 - y^2 = \dots\dots\dots$

5 If the probability of a pupil succeeds is $\frac{7}{12}$, then the probability of his failure is $\dots\dots\dots$

3 [a] Factorize :

1 $X^2 - 9Y^2$

2 $X^2 - 6X + 8$

3 $3X^3 - 81$

[b] If $\left(\frac{2}{5}\right)^{X+1} = \frac{8}{125}$, find : the value of X

4 [a] Find in \mathbb{R} the S.S. of the equation : $X^2 - 8X = -15$

[b] Find in \mathbb{R} the S.S. of the equation : $5^{X-3} = 25$

5 [a] Simplify : $\frac{4^n \times 6^{2n}}{2^{4n} \times 3^{2n}}$

[b] A bag contains balls labeled by the numbers from 1 to 15, if a ball is drawn at random, find the probability of getting :

1 An even number.

2 A number divisible by 5

3 A prime number.



Answer the following questions :

1 Choose the correct answer from the given answers :

- 1 If $X + y = 3$, then $7y + 7X = \dots\dots\dots$
- (a) 7 (b) 21 (c) 72 (d) 10
- 2 The multiplicative inverse of $3^{-1} = \dots\dots\dots$
- (a) $\frac{1}{3}$ (b) -3 (c) -1 (d) 3
- 3 For any event $A \subset S$, then $P(A) \dots\dots\dots [zero , 1]$
- (a) \subset (b) $\not\subset$ (c) \in (d) \notin
- 4 If $4^{X+1} = 20$, then $4^X = \dots\dots\dots$
- (a) 5 (b) 4 (c) 9 (d) 24
- 5 If $X^2 - 2Xy + y^2 = 36$, then $X - y = \dots\dots\dots$
- (a) -6 (b) ± 6 (c) 6 (d) 8

2 Complete the following statements :

- 1 The probability of the impossible event equals $\dots\dots\dots$
- 2 If $X = \sqrt{5} + 2$, then $X^2 = \dots\dots\dots$
- 3 If $X^3 + y^3 = 63$, $X + y = 9$, then $X^2 - Xy + y^2 = \dots\dots\dots$
- 4 The solution set of the equation : $X^3 - 9X = 0$ is $\dots\dots\dots$ (where $X \in \mathbb{R}$)
- 5 If $2^X = 15$, $2^y = 5$, then $2^{X-y} = \dots\dots\dots$

3 [a] Put in its simplest form : $\frac{3^{2X+1} \times 25^X}{15^{2X}}$

[b] A positive real number , if its square is added to it , the result is 12 , what is the number ?

4 [a] If $X \neq \text{zero}$, $X + \frac{1}{X} = \sqrt{3}$, what is the value of the expression : $X^2 + \frac{1}{X^2}$?

[b] A group of cards numbered from 1 to 15. If one card is drawn at random , write the sample space and then find the probability that the number on the drawn card is :

- 1 A multiple of 6 2 An even prime number.

5 [a] Factorize each of the following perfectly :

[1] $8x^4 + x$

[2] $x^2 + y(x - 12y)$

[3] $x^3 - 3x^2 + 6x - 18$

[4] $3y^2 + 7y - 6$

[b] [1] Find the solution set of the equation where $x \in \mathbb{R} : x^2 - 10x = -21$ **[2]** Find the value of n where n is an integer : $4 \times 2^{n+5} = 1$ **9****El-Gharbia Governorate****The Central Math Supervision
Governmental Language Schools****Answer the following questions :****1 Complete the following :****[1]** The S.S. of : $x^2 + 25 = 0$ in \mathbb{R} is**[2]** The multiplicative inverse of the number $(\sqrt{3})^4$ is**[3]** If $(x - 5)^0 = 1$, then $x \in$ **[4]** If the perimeter of a square is m cm. , then its area is**[5]** The probability of the impossible event equals**2 Choose the correct answer from those given :****[1]** If $6^x = 7$, then $6^{x+1} =$

(a) 8

(b) 13

(c) 36

(d) 42

[2] The S.S. of the equation : $x^3 + 9x = 0$ in \mathbb{R} is(a) $\{0, 3\}$ (b) $\{0\}$ (c) $\{0, -3\}$ (d) $\{0.3, -3\}$ **[3]** If $x^2 - a = (x - 3)(x + 3)$, then $a =$

(a) 3

(b) -3

(c) 9

(d) -9

[4] The expression : $x^2 + x + a$ is a perfect square , when $a =$

(a) 1

(b) 0.5

(c) 0.25

(d) 2

[5] If $(x + y) = \frac{3}{5}$, then $(5x + 5y)^3 =$

(a) 125

(b) 15

(c) 27

(d) 0.9

3 [a] Simplify : $\frac{4^n \times 6^{2n}}{2^{4n} \times 3^{2n}}$ **[b]** If the length of a rectangle is 5 cm. more than its width and its area is 36 cm^2 , find its perimeter.

4 Factorize each of the following expressions :

1 $x^2 - 9y^2$

2 $x^3 - 3x^2 + 6x - 18$

3 $25x^2 - 30x + 9$

4 $3x^3 - 81$

5 [a] If a card is chosen randomly from 10 cards numbered from 1 to 10 , then find the probability that the number on the chosen card is :**1** even.**2** divisible by 3**3** even prime.**[b]** If $2^{x-2} = 32$, then find : the value of x **10 El-Dakahlia Governorate****Maths Supervision***Answer the following questions :***1 Complete each of the following :**

1 $1 - \frac{3}{4} = \dots\dots\dots \%$

2 The S.S. of $x^2 - 9 = 0$ in \mathbb{R} is**3** If $6^x = 7$, then $6^{x+1} = \dots\dots\dots$

4 $(a - 2)(2a - 3) = 2a^2 - 7a + \dots\dots\dots$

5 The probability of the sure event equals**2 [a]** Factorize each of the following completely :

1 $x^2 + 8x + 15$

2 $2x^3 - 16$

[b] Simplify : $\frac{4^{x+2} \times 9^x}{6^{2x}}$

3 [a] Factorize each of the following completely :

1 $4x^2 - 25$

2 $ax - 7a + 3x - 21$

[b] Find the value of x in each of the following :

1 $2^{x-2} = 16$

2 $3^{x-5} = 7^{x-5}$

4 Choose the correct answer from those given :**1** The expression : $x^2 + kx + 36$ is a perfect square , when $k = \dots\dots\dots$ **(a)** ± 6 **(b)** ± 8 **(c)** ± 12 **(d)** ± 18

- 2 If $x^3 y^{-3} = 8$, then $\frac{y}{x} = \dots\dots\dots$
- (a) 2 (b) ± 8 (c) $\pm \frac{1}{8}$ (d) $\frac{1}{2}$
- 3 If $x + y = 3$, $x^2 - xy + y^2 = 5$, then $x^3 + y^3 = \dots\dots\dots$
- (a) 15 (b) 25 (c) 8 (d) 7
- 4 If $3^x + 3^x + 3^x = 1$, then $x = \dots\dots\dots$
- (a) -1 (b) 0 (c) 1 (d) 2
- 5 If $x^2 - m = (x - 7)(x + 7)$, then the value of $m = \dots\dots\dots$
- (a) 14 (b) -14 (c) 49 (d) -49

5 [a] Find the solution set in \mathbb{R} for the equation : $x^2 - x - 6 = 0$

[b] A colored marble is drawn randomly of a box containing 13 red marbles, 17 white marbles and 20 blue marbles. Find the probability of drawing :

- 1 A white marble. 2 A red or blue marble.

11

Port Said Governorate



Educational Directorate

Answer the following questions :

1 Choose the correct answer from the given ones :

- 1 If $(x - 3)^0 = 1$, then $x \in \dots\dots\dots$
- (a) $\{3\}$ (b) $\{-3\}$ (c) $\mathbb{R} - \{3\}$ (d) $\mathbb{R} - \{-3\}$
- 2 $4^3 + 4^3 + 4^3 + 4^3 = 4 \dots\dots\dots$
- (a) 2 (b) 3 (c) 4 (d) 5
- 3 A regular die is thrown once and the upper face is observed, then the probability of appearance a number divisible by 3 is $\dots\dots\dots$
- (a) $\frac{1}{4}$ (b) $\frac{1}{3}$ (c) $\frac{1}{2}$ (d) $\frac{3}{4}$
- 4 The S.S. of : $x(x - 1) = 0$ in \mathbb{R} is $\dots\dots\dots$
- (a) $\{0\}$ (b) $\{1\}$ (c) $\{1, -1\}$ (d) $\{0, 1\}$
- 5 $(\sqrt{3} + \sqrt{2})^9 (\sqrt{3} - \sqrt{2})^9 = \dots\dots\dots$
- (a) 1 (b) $\sqrt{5}$ (c) $\sqrt{6}$ (d) 5

2 Complete each of the following :

- [1] If $(x - 3)$ is one factor of the expression : $x^2 - 4x + 3$, then the other factor is
- [2] The expression : $4x^2 + kx + 49$ is a perfect square when $k =$
- [3] The probability of the certain (sure) event equals
- [4] $3x^2 + 10x + 8 = (3x + \dots)(x + \dots)$
- [5] $2^{\text{zero}} + 2^{-1} - \left(\frac{-1}{\sqrt{2}}\right)^2 =$

3 [a] Factorize each of the following completely :

[1] $x^2 - 25$

[2] $x^2 - 11x + 18$

[3] $x^3 + 8$

[4] $xy + 5y + 7x + 35$

[b] If $\left(\frac{2}{5}\right)^{2x-1} = \frac{125}{8}$, find : the value of x

4 [a] Find in \mathbb{R} the S.S. of : $x^2 + 3x - 28 = 0$

[b] Simplify : $\frac{(\sqrt{3})^8 \times (\sqrt{3})^{-14}}{(\sqrt{3})^{-4}}$

5 [a] Use factorization to get the value of : $(7.3)^2 + 2 \times 7.3 \times 2.7 + (2.7)^2$

[b] The following table shows the evaluations of 50 students in one month :

| Evaluation | Excellent | Very good | Good | Pass | Fail |
|--------------------|-----------|-----------|------|------|------|
| Number of students | 6 | 9 | 11 | 16 | 8 |

A student is randomly selected. What is the probability of getting :

[1] Excellent.

[2] Good.

[3] Pass.

12 Kafr El-Sheikh Governorate

General Math Supervision

*Answer the following questions :***1 Choose the correct answer :**

[1] If $2^x = 5$, then $8^x =$

(a) 40

(b) 10

(c) 16

(d) 125

[2] If $\frac{x-2}{x+5} = 0$, then $x =$

(a) 2

(b) -2

(c) 5

(d) -5

3 If $7^{X-3} = 5^{X-3}$, then $X = \dots\dots\dots$

- (a) 5 (b) 7 (c) 3 (d) -3

4 If the expression : $X^2 + 14X + k$ is a perfect square, then $k = \dots\dots\dots$

- (a) 2 (b) 7 (c) 14 (d) 49

5 A fair die is thrown once, then the probability that 5 appears is $\dots\dots\dots$

- (a) $\frac{1}{2}$ (b) $\frac{1}{6}$ (c) $\frac{1}{3}$ (d) $\frac{5}{6}$

2 Complete :

1 If $3^X = 27$, $4^{X+y} = 1$, then $y = \dots\dots\dots$

2 If $X^2 - y^2 = 12$, $X - y = 3$, then $X + y = \dots\dots\dots$

3 The slope of the straight line which is parallel to the X -axis is $\dots\dots\dots$

4 If $3^X + 3^X + 3^X = 1$, then $X = \dots\dots\dots$

5 The solution set of the equation : $X^2 + 9 = 0$ in \mathbb{R} is $\dots\dots\dots$

3 [a] Factorize each of the following :

1 $X^2 - 5X - 24$

2 $X^3 - 125$

3 $Xy + 5y + 3X + 15$

[b] Find the solution set in \mathbb{R} for : $X^2 + 12 = 7X$

4 [a] Simplify : $\frac{4^n \times 6^{2n}}{2^{4n} \times 3^{2n}}$

[b] Find the value of X if :

1 $\frac{8^X \times 9^X}{18^X} = 64$

2 $3^{X-2} = \frac{1}{27}$

5 [a] Find the positive real number if added to its square the result will be 12

[b] A numbered card is selected randomly from a set of similar cards numbered from 1 to 20, find the probability of getting a card carrying :

1 A number divisible by 5

2 A prime number.

13

El-Menia Governorate

Bani Mazar Administration
Al-Zahra Language School

Answer the following questions :

1 Choose the correct answer from the given ones :

1 If $3^X = 2$, then $3^{X+1} = \dots\dots\dots$

- (a) 4 (b) 6 (c) 8 (d) 27

2 $X^2 + 10X + k$ is a perfect square when $k = \dots\dots\dots$

- (a) 10 (b) 25 (c) ± 10 (d) ± 25

3 The S.S. of the equation : $X^2 - 49 = 0$ in \mathbb{R} is $\dots\dots\dots$

- (a) $\{7\}$ (b) $\{-7\}$ (c) $\{-7, 7\}$ (d) \emptyset

4 $4^3 + 4^3 = \dots\dots\dots$

- (a) 4^9 (b) 4^6 (c) 2^4 (d) 2^7

5 The probability of the impossible event equals $\dots\dots\dots$

- (a) 0 (b) \emptyset (c) 1 (d) 100 %

2 Complete the following :

1 5 years from now it will be the age of a man was X years , then his age now is $\dots\dots\dots$ years.

2 $\frac{1}{2} X^2 - 2 = \frac{1}{2} (X^2 - \dots\dots\dots)$

3 A quarter of a half = $\dots\dots\dots$ %

4 If $7^{X-3} = 1$, then $X = \dots\dots\dots$

5 If $a + b = 4$, $a - b = 5$, then $a^2 - b^2 = \dots\dots\dots$

3 Factorize each of the following expressions :

1 $X^2 - 25$

2 $a b + a + b + 1$

3 $X^3 + 27$

4 $X^3 + X^2 - 12X$

4 [a] Solve the following equation in \mathbb{R} : $X^2 = 3X$

[b] Simplify to the simplest form : $\frac{5^{2X} \times 5^{X-1}}{5^3 X}$

5 [a] If $\left(\frac{3}{2}\right)^{X-1} = \frac{8}{27}$, then find : the value of X

[b] A regular die is thrown once, find :

- 1 The event to get an odd prime number.
- 2 The probability of getting a number that is divisible by 5

14 Assiut Governorate



Administration of Distinguished & Governmental Language Schools

Answer the following questions :

1 Choose the correct answer from those given :

- 1 The solution set of the equation : $X^2 - X = 0$ in \mathbb{R} is
 - (a) $\{0\}$
 - (b) \emptyset
 - (c) $\{0, 1\}$
 - (d) $\{1\}$
- 2 If $X^2 + kX + 36$ is a perfect square, then $k = \dots\dots\dots$
 - (a) ± 18
 - (b) ± 12
 - (c) ± 8
 - (d) ± 6
- 3 $3^X \times 3^X \times 3^X = \dots\dots\dots$
 - (a) 3^{3X}
 - (b) 3^{X+1}
 - (c) 3^{X+3}
 - (d) 9^{3X}
- 4 If $2X^2 + cX - 3 = (2X - 1)(X + 3)$, then $c = \dots\dots\dots$
 - (a) 2
 - (b) 4
 - (c) -5
 - (d) 5
- 5 If $3^X = 5$, $3^Y = 4$, then $3^{X+Y} = \dots\dots\dots$
 - (a) 15
 - (b) 20
 - (c) 9
 - (d) 1

2 Complete the following :

- 1 The probability of the certain event equals
- 2 $1 - \frac{3}{4} = \dots\dots\dots \%$
- 3 If $X^3 Y^{-3} = 8$, then $\frac{Y}{X} = \dots\dots\dots$
- 4 $2 \times 6 - 8 \div 4 = \dots\dots\dots$
- 5 If $7^{X-1} = 3^{X-1}$, then $X = \dots\dots\dots$

3 [a] Factorize each of the following :

- 1 $25X^2 - Y^2$
- 2 $X^3 + 216$

[b] If $3^X = 27$, $4^{X+Y} = 1$, find : the values of X and Y

4 [a] Find in \mathbb{R} the solution set of the equation : $X^2 - 1 = 8$

[b] Simplify : $\frac{4^{X+1} \times 9^{2-X}}{6^2 X}$, then calculate its value at $X = 1$

5 [a] Factorize : $a y + 5 X + 5 y + a X$

[b] A colored marble is drawn randomly out of a box containing 12 red marbles , 18 white marbles and 20 blue marbles. Find the probability of selecting :

1 A white marble.

2 A red marble.

3 A yellow marble.

4 A non red marble

15 Qena Governorate



Qena Directorate of Education
Math Supervision

Answer the following questions :

1 Complete each of the following :

1 The simplest form of : $(\sqrt{3})^3 \times (\sqrt{3})^5 = \dots\dots\dots$

2 If $X + y = 5$ and $X - y = 3$, then $X^2 - y^2 = \dots\dots\dots$

3 $(\sqrt{7} + \sqrt{6})^8 (\sqrt{7} - \sqrt{6})^8 = \dots\dots\dots$

4 If $X - 6 = 0$, then $X = \dots\dots\dots$

5 $y^3 - \dots\dots\dots = (y - 2) (y^2 + \dots\dots\dots + 4)$

2 Choose the correct answer :

1 The expression : $X^2 + 8 X + a$ is a perfect square when $a = \dots\dots\dots$

(a) -4

(b) 4

(c) 8

(d) 16

2 If the age of kamal now is X years , then his age 3 years ago was $\dots\dots\dots$ years.

(a) $X + 3$

(b) $3 X$

(c) $X - 3$

(d) $6 X$

3 A regular die is thrown once , then the probability of appearance 7 on the upper face is $\dots\dots\dots$

(a) $-\frac{5}{6}$

(b) $\frac{1}{6}$

(c) 0

(d) $\frac{5}{6}$

4 $3^3 + 3^3 + 3^3 = \dots\dots\dots$

(a) 3^3

(b) 3^4

(c) 3^{12}

(d) 3^{81}

5 The solution set of the equation : $(X - 1)^2 = 0$ in \mathbb{R} is

(a) $\{-1\}$

(b) $\{1, -1\}$

(c) $\{1\}$

(d) $\{2\}$

3 Factorize each of the following expressions :

1 $9X^2 - 4$

2 $aX - 7a + 3X - 21$

3 $X^3 - 1$

4 [a] Find the solution set in \mathbb{R} : $X^2 + 8X + 15 = 0$

[b] Find in the simplest form : $\frac{X^2 \times X^5}{X^3}$ where $X \neq 0$

5 [a] A numbered card is selected randomly from a set of similar cards numbered from 1 to 15

Find the probability of getting a card carrying :

1 A prime number.

2 A number divisible by 3

[b] If $2^{X-2} = 32$, then find : the value of X

Answers of the schools examinations on Algebra & Statistics

1

Cairo

1 1 (b) 2 (c) 3 (c)

4 (a) 5 (c)

2 1 $8, X^2$ 2 4^{19} 3 8

4 1 5 -3

3

1 $(X-9)(X+9)$

2 $a(X-7) + 3(X-7) = (X-7)(a+3)$

3 $(2X+1)(4X^2-2X+1)$

4 $(2X+5)(X-3)$

4

[a] $\therefore X^2 - X - 12 = 0 \quad \therefore (X-4)(X+3) = 0$

$\therefore X = 4$ or $X = -3$

\therefore The S.S. = $\{4, -3\}$

[b] $\frac{(\sqrt{3})^5 \times 2^3}{2 \times (\sqrt{3})^7} = (\sqrt{3})^{5-7} \times 2^{3-1} = (\sqrt{3})^{-2} \times 2^2$
 $= \frac{2^2}{(\sqrt{3})^2} = \frac{4}{3}$

5

[a] $\therefore 3^{X-2} = 3^4 \quad \therefore X-2 = 4$

$\therefore X = 6$

[b] 1 The probability of the drawn ball is red = $\frac{4}{15}$

2 The probability of the drawn ball is not green
 $= \frac{4+6}{15} = \frac{10}{15} = \frac{2}{3}$

3 The probability of the drawn ball is white
 $= \frac{6}{15} = \frac{2}{5}$

2

Cairo

1 1 4 2 $\{5, -5\}$ 3 0.3

4 3 5 zero

2 1 (c) 2 (a) 3 (d)

4 (c) 5 (b)

3

[a] $\therefore \frac{(2^3)^X \times (3^2)^X}{(2 \times 3^2)^X} = 2^6 \quad \therefore \frac{2^{3X} \times 3^{2X}}{2^X \times 3^{2X}} = 2^6$

$\therefore 2^{3X-X} = 2^6$

$\therefore 2^X = 2^6$

$\therefore X = 6$

$\therefore 2^{2X} = 2^6$

$\therefore X = 3$

[b] $\therefore X^2 - 1 = 8 \quad \therefore X^2 = 9$

$\therefore X = 3$ or $X = -3$

\therefore The S.S. = $\{3, -3\}$

4

1 $(2X-3)(2X+3)$

2 $(X+2)(X^2-2X+4)$

3 $(X-3)(X+2)$

4 $a(X-7) + 3(X-7) = (X-7)(a+3)$

5

[a] 1 The probability of getting a white ball = $\frac{3}{10}$

2 The probability of getting a not red ball
 $= \frac{3+5}{10} = \frac{8}{10} = \frac{4}{5}$

3 The probability of getting a yellow ball
 $= \frac{0}{10} = 0$

4 The probability of getting a red or blue ball
 $= \frac{2+5}{10} = \frac{7}{10}$

[b] $\therefore 3^{X-4} = 3^2 \quad \therefore X-4 = 2$

$\therefore X = 6$

\therefore The S.S. = $\{6\}$

3

Giza

1 1 (c) 2 (b) 3 (a)

4 (d) 5 (a)

2 1 $a^2, 6$ 2 4 3 $\frac{1}{2}$

4 $X+m$ 5 $\{0, -3\}$

3

[a] 1 $(X-2y)(X+2y)$

2 $(X+2)(X^2-2X+4)$

[b] $\frac{(2^2)^X \times (3^2)^X}{(2 \times 3^2)^X} = \frac{2^{2X} \times 3^{2X}}{2^X \times 3^{2X}} = 1$

4

[a] $\therefore X^2 + X - 6 = 0 \quad \therefore (X+3)(X-2) = 0$

$\therefore X = -3$ or $X = 2$

\therefore The S.S. = $\{-3, 2\}$

[b] 1 $(X+7)^2$

2 $a(X-7) + 3(X-7) = (X-7)(a+3)$

5

[a] ∴ The probability of choosing a girl

$= 1 - 0.6 = 0.4$

∴ The number of girls $= 40 \times 0.4 = 16$ girls

[b] ∴ $X^3 y^{-3} = 8$ ∴ $\frac{X^3}{y^3} = 2^3$

∴ $\left(\frac{X}{y}\right)^3 = 2^3$ ∴ $\frac{X}{y} = 2$

4

Giza

1 1 zero

2 ∅

3 1

4 125

5 $X-7$

2 1 (c)

2 (b)

3 (c)

4 (b)

5 (c)

3

[a] 1 $(X-4)(X+4)$

2 $5(X+2y) + a(X+2y) = (X+2y)(5+a)$

3 $X^4 + 4X^2y^2 + 4y^4 - 4X^2y^2$
 $= (X^2 + 2y^2)^2 - 4X^2y^2$
 $= (X^2 + 2y^2 + 2Xy)(X^2 + 2y^2 - 2Xy)$

[b] Let the number be X ∴ $X + X^2 = 12$

∴ $X^2 + X - 12 = 0$ ∴ $(X-3)(X+4) = 0$

∴ $X = 3$ or $X = -4$

∴ The number is : 3 or -4

4

[a] 1 ∴ $3X^2 + 15X - 18 = 0$ (Dividing by 3)

∴ $X^2 + 5X - 6 = 0$

∴ $(X+6)(X-1) = 0$ ∴ $X = -6$ or $X = 1$

∴ The S.S. = $\{-6, 1\}$

2 ∴ $X^3 - 9X = 0$ ∴ $X(X^2 - 9) = 0$

∴ $X(X-3)(X+3) = 0$

∴ $X = 0$ or $X = 3$ or $X = -3$

∴ The S.S. = $\{0, 3, -3\}$

[b] ∴ $\frac{(3^2)^X \times 3^{2X}}{(3^3)^X} = 3^2$ ∴ $\frac{3^{2X} \times 3^{2X}}{3^{3X}} = 3^2$

∴ $\frac{3^{4X}}{3^{3X}} = 3^2$ ∴ $3^{4X-3X} = 3^2$

∴ $3^X = 3^2$ ∴ $X = 2$

5

[a] $\frac{(2^2)^X \times (2 \times 3)^{2X}}{2^{2X} \times 3^{2X}} = \frac{2^{2X} \times 2^{2X} \times 3^{2X}}{2^{2X} \times 3^{2X}} = 2^{2X}$

When $X = 2$ ∴ $2^{2X} = 2^{2 \times 2} = 2^4 = 16$

[b] 1 The probability of the ball is white = $\frac{5}{10} = \frac{1}{2}$

2 The probability of the ball is not red
 $= \frac{5+3}{10} = \frac{8}{10} = \frac{4}{5}$

5

Alexandria

1 1 (c)

2 (a)

3 (d)

4 (c)

5 (b)

2 1 12

2 $\frac{1}{125}$

3 25

4 ∅

5 -3

3

[a] 1 $(2X+1)(X+3)$

2 $(X-2)(X^2+2X+4)$

[b] $\frac{(2^2)^n \times (3 \times 2)^{2n}}{2^{4n} \times 3^{2n}} = \frac{2^{2n} \times 3^{2n} \times 2^{2n}}{2^{4n} \times 3^{2n}} = \frac{2^{4n}}{2^{4n}} = 1$

4

[a] 1 ∴ $X^2 - 8X + 12 = 0$

∴ $(X-6)(X-2) = 0$

∴ $X = 6$ or $X = 2$

∴ The S.S. = $\{6, 2\}$

2 ∴ $9X^2 - 16 = 0$

∴ $(3X-4)(3X+4) = 0$

∴ $X = \frac{4}{3}$ or $X = -\frac{4}{3}$

∴ The S.S. = $\{\frac{4}{3}, -\frac{4}{3}\}$

[b] 1 $X^{-2}y^{-4} = \frac{1}{X^2} \times \frac{1}{y^4}$
 $= \frac{1}{(3)^2} \times \frac{1}{(\sqrt{2})^4} = \frac{1}{9} \times \frac{1}{4} = \frac{1}{36}$

2 $\left(\frac{X}{y}\right)^{-1} = \left(\frac{y}{X}\right) = \frac{\sqrt{2}}{3}$

5

$$[a] \because \left(\frac{2}{5}\right)^{2X-1} = \frac{8}{125}$$

$$\therefore \left(\frac{2}{5}\right)^{2X-1} = \left(\frac{2}{5}\right)^3 \quad \therefore 2X-1=3$$

$$\therefore 2X=4 \quad \therefore X=2$$

[b] 1 The probability of appearance of a number divisible by 7 = $\frac{0}{6}$ = zero

2 The probability of appearance of a prime number = $\frac{3}{6} = \frac{1}{2}$

6**El-Kalyoubia****1**

1 (c)

2 (b)

3 (a)

4 (d)

5 (b)

2

1 -3

2 (X+5)

3 X+3

4 0.4

5 {0, 3, -5}

3

$$[a] \because X^2 - 9X + 14 = 0$$

$$\therefore (X-2)(X-7) = 0$$

$$\therefore X=2 \text{ or } X=7$$

$$\therefore \text{The S.S.} = \{2, 7\}$$

$$[b] \frac{(3^2)^{X+1} \times (2^2)^X}{(3 \times 2)^{2X}} = \frac{3^{2X+2} \times 2^{2X}}{3^{2X} \times 2^{2X}} = 3^{2X+2-2X} = 3^2 = 9$$

4

$$[1] (2X-5)(2X+5)$$

$$[2] (3X+2)(X-3)$$

$$[3] a(X-7) + 3(X-7) = (X-7)(a+3)$$

$$[4] 2(X+2)(X^2-2X+4)$$

5

$$[a] \because 2^{X-1} = 2^5 \quad \therefore X-1=5$$

$$\therefore X=6$$

$$\therefore 3^y = (3)^{-2} \quad \therefore y = -2$$

$$\therefore X+y = 6-2 = 4$$

[b] 1 The probability of the drawn ball is red

$$= \frac{4}{12} = \frac{1}{3}$$

2 The probability of the drawn ball is not white

$$= \frac{4+5}{12} = \frac{9}{12} = \frac{3}{4}$$

7**El-Sharkia****1**

1 (c)

2 (d)

3 (c)

4 (d)

5 (c)

2

1 zero

2 $\frac{1}{7}$

3 15

4 35

5 $\frac{5}{12}$ **3**

$$[a] 1 (X-3y)(X+3y) \quad 2 (X-4)(X-2)$$

$$3 3(X-3)(X^2+3X+9)$$

$$[b] \because \left(\frac{2}{5}\right)^{X+1} = \left(\frac{2}{5}\right)^3 \quad \therefore X+1=3$$

$$\therefore X=2$$

4

$$[a] \because X^2 - 8X + 15 = 0 \quad \therefore (X-5)(X-3) = 0$$

$$\therefore X=5 \text{ or } X=3 \quad \therefore \text{The S.S.} = \{5, 3\}$$

$$[b] \because 5^{X-3} = 5^2 \quad \therefore X-3=2$$

$$\therefore X=5 \quad \therefore \text{The S.S.} = \{5\}$$

5

$$[a] \frac{(2^2)^n \times (2 \times 3)^{2n}}{2^{4n} \times 3^{2n}} = \frac{2^{2n} \times 2^{2n} \times 3^{2n}}{2^{4n} \times 3^{2n}} = \frac{2^{4n}}{2^{4n}} = 1$$

[b] 1 The probability of getting an even number = $\frac{7}{15}$

2 The probability of getting a number divisible by 5 = $\frac{3}{15} = \frac{1}{5}$

3 The probability of getting a prime number = $\frac{6}{15} = \frac{2}{5}$

8**El-Monofia****1**

1 (b)

2 (d)

3 (c)

4 (a)

5 (b)

2

1 zero

2 $9+4\sqrt{5}$

3 7

4 {0, 3, -3}

5 3

3

$$[a] \frac{3^{2X+1} \times (5^2)^X}{(3 \times 5)^{2X}} = \frac{3^{2X+1} \times 5^{2X}}{3^{2X} \times 5^{2X}} = 3^{2X+1-2X} = 3$$

[b] let the number be X $\therefore X+X^2=12$

$$\therefore X^2+X-12=0 \quad \therefore (X-3)(X+4)=0$$

$$\therefore X=3 \text{ or } X=-4 \text{ (refused)}$$

$$\therefore \text{The number is : 3}$$

4

$$\begin{aligned} \text{[a]} \quad & \because x + \frac{1}{x} = \sqrt{3} \quad \therefore \left(x + \frac{1}{x}\right)^2 = (\sqrt{3})^2 \\ & \therefore x^2 + 2 + \frac{1}{x^2} = 3 \quad \therefore x^2 + \frac{1}{x^2} = 1 \end{aligned}$$

$$\text{[b]} S = \{1, 2, 3, \dots, 15\}$$

1 The probability of drawing a card carrying a multiple of 6 = $\frac{2}{15}$

2 The probability of drawing a card carrying an even prime number = $\frac{1}{15}$

5

$$\text{[a]} \quad 1 \quad x(8x^3 + 1) = x(2x + 1)(4x^2 - 2x + 1)$$

$$2 \quad x^2 + xy - 12y^2 = (x + 4y)(x - 3y)$$

$$3 \quad x^2(x - 3) + 6(x - 3) = (x - 3)(x^2 + 6)$$

$$4 \quad (3y - 2)(y + 3)$$

$$\text{[b]} \quad 1 \quad \because x^2 - 10x + 21 = 0 \quad \therefore (x - 7)(x - 3) = 0$$

$$\therefore x = 7 \text{ or } x = 3 \quad \therefore \text{The S.S.} = \{3, 7\}$$

$$2 \quad \because 4 \times 2^{n+5} = 1 \quad \therefore 2^2 \times 2^{n+5} = 1$$

$$\therefore 2^{n+7} = 2^0 \quad \therefore n + 7 = 0$$

$$\therefore n = -7$$

9

El-Gharbia

$$1 \quad 1 \quad \emptyset \quad 2 \quad \frac{1}{9} \quad 3 \quad \mathbb{R} - \{5\}$$

$$4 \quad \frac{m^2}{16} \text{ cm}^2 \quad 5 \quad \text{zero}$$

$$2 \quad 1 \quad (d) \quad 2 \quad (b) \quad 3 \quad (c)$$

$$4 \quad (c) \quad 5 \quad (c)$$

3

$$\text{[a]} \quad \frac{(2^2)^n \times (2 \times 3)^{2n}}{2^{4n} \times 3^{2n}} = \frac{2^{2n} \times 2^{2n} \times 3^{2n}}{2^{4n} \times 3^{2n}} = \frac{2^{4n}}{2^{4n}} = 1$$

[b] Let the width be x cm.

$$\therefore \text{The length} = (x + 5) \text{ cm.}$$

$$\therefore x(x + 5) = 36$$

$$\therefore x^2 + 5x - 36 = 0$$

$$\therefore (x - 4)(x + 9) = 0$$

$$\therefore x = 4 \text{ or } x = -9 \text{ (refused)}$$

$$\therefore \text{The width} = 4 \text{ cm.}$$

$$\therefore \text{the length} = 9 \text{ cm.}$$

$$\therefore \text{Its perimeter} = (4 + 9) \times 2 = 26 \text{ cm.}$$

4

$$1 \quad (x - 3y)(x + 3y)$$

$$2 \quad x^2(x - 3) + 6(x - 3) = (x - 3)(x^2 + 6)$$

$$3 \quad (5x - 3)(5x - 3)$$

$$4 \quad 3(x^2 - 27) = 3(x - 3)(x^2 + 3x + 9)$$

5

[a] 1 The probability that the number on the chosen card is even = $\frac{5}{10} = \frac{1}{2}$

2 The probability that the number on the chosen card is divisible by 3 = $\frac{3}{10}$

3 The probability that the number on the chosen card is even prime = $\frac{1}{10}$

$$\text{[b]} \quad 2 \quad x^{-2} = 2^5 \quad \therefore x - 2 = 5$$

$$\therefore x = 7$$

10

El-Dakahlia

$$1 \quad 1 \quad 25 \quad 2 \quad \{3, -3\} \quad 3 \quad 42$$

$$4 \quad 6 \quad 5 \quad 1$$

2

$$\text{[a]} \quad 1 \quad (x + 5)(x + 3)$$

$$2 \quad 2(x^3 - 8) = 2(x - 2)(x^2 + 2x + 4)$$

$$\begin{aligned} \text{[b]} \quad & \frac{(2^2)^{x+2} \times (3^2)^x}{(2 \times 3)^{2x}} = \frac{2^{2x+4} \times 3^{2x}}{2^{2x} \times 3^{2x}} \\ & = 2^{2x+4-2x} = 2^4 = 16 \end{aligned}$$

3

$$\text{[a]} \quad 1 \quad (2x - 5)(2x + 5)$$

$$2 \quad a(x - 7) + 3(x - 7) = (x - 7)(a + 3)$$

$$\text{[b]} \quad 1 \quad \because 2^{x-2} = 2^4 \quad \therefore x - 2 = 4$$

$$\therefore x = 6$$

$$2 \quad \because 3^{x-5} = 7^{x-5} \quad \therefore x - 5 = 0$$

$$\therefore x = 5$$

$$4 \quad 1 \quad (c) \quad 2 \quad (d) \quad 3 \quad (a)$$

$$4 \quad (a) \quad 5 \quad (c)$$

5

$$\text{[a]} \quad \because x^2 - x - 6 = 0 \quad \therefore (x - 3)(x + 2) = 0$$

$$\therefore x = 3 \text{ or } x = -2 \quad \therefore \text{The S.S.} = \{3, -2\}$$

- [b] 1 The probability of drawing a white

$$\text{marble} = \frac{17}{50}$$

- 2 The probability of drawing a red or blue

$$\text{marble} = \frac{13+20}{50} = \frac{33}{50}$$

11 Port Said

- 1 1 (c) 2 (c) 3 (b)
4 (d) 5 (a)

- 2 1 $(X-1)$ 2 ± 28 3 1
4 $4, 2$ 5 1

3

- [a] 1 $(X-5)(X+5)$
2 $(X-9)(X-2)$
3 $(X+2)(X^2-2X+4)$
4 $y(X+5)+7(X+5)=(X+5)(y+7)$

[b] $\therefore \left(\frac{2}{5}\right)^{2X-1} = \left(\frac{5}{2}\right)^3 \therefore \left(\frac{2}{5}\right)^{2X-1} = \left(\frac{2}{5}\right)^{-3}$
 $\therefore 2X-1 = -3 \therefore 2X = -2$
 $\therefore X = -1$

4

[a] $\therefore X^2 + 3X - 28 = 0 \therefore (X+7)(X-4) = 0$
 $\therefore X = -7 \text{ or } X = 4 \therefore \text{The S.S.} = \{-7, 4\}$

[b] $\frac{(\sqrt{3})^8 \times (\sqrt{3})^{-14}}{(\sqrt{3})^{-4}} = (\sqrt{3})^{8-14+4} = (\sqrt{3})^{-2} = \frac{1}{3}$

5

[a] $(7.3)^2 + 2 \times 7.3 \times 2.7 + (2.7)^2$
 $= (7.3 + 2.7)^2 = (10)^2 = 100$

[b] 1 The probability of getting excellent = $\frac{6}{50} = \frac{3}{25}$

2 The probability of getting good = $\frac{11}{50}$

3 The probability of getting pass = $\frac{16}{50} = \frac{8}{25}$

12 Kafr El-Sheikh

- 1 1 (d) 2 (a) 3 (c)
4 (d) 5 (b)

- 2 1 -3 2 4 3 zero
4 -1 5 \emptyset

3

- [a] 1 $(X-8)(X+3)$
2 $(X-5)(X^2+5X+25)$
3 $y(X+5)+3(X+5)=(X+5)(y+3)$

[b] $\therefore X^2 - 7X + 12 = 0 \therefore (X-3)(X-4) = 0$
 $\therefore X = 3 \text{ or } X = 4$
 $\therefore \text{The S.S.} = \{3, 4\}$

4

[a] $\frac{(2^2)^n \times (2 \times 3)^{2n}}{2^{4n} \times 3^{2n}} = \frac{2^{2n} \times 2^{2n} \times 3^{2n}}{2^{4n} \times 3^{2n}} = \frac{2^{4n}}{2^{4n}} = 1$

[b] 1 $\therefore \frac{(2^3)^X \times (3^2)^X}{(2 \times 3)^X} = 2^6 \therefore \frac{2^{3X} \times 3^{2X}}{2^X \times 3^{2X}} = 2^6$
 $\therefore 2^{3X-X} = 2^6 \therefore 2^{2X} = 2^6$
 $\therefore 2X = 6 \therefore X = 3$
 2 $\therefore 3^{X-2} = \frac{1}{3^3} \therefore 3^{X-2} = 3^{-3}$
 $\therefore X-2 = -3 \therefore X = -1$

5

- [a] Let the number be : X

$\therefore X + X^2 = 12 \therefore X^2 + X - 12 = 0$
 $\therefore (X-3)(X+4) = 0$
 $\therefore X = 3 \text{ or } X = -4 \text{ (refused)}$
 $\therefore \text{The number is } 3$

- [b] 1 The probability of getting a card carrying a number divisible by 5 = $\frac{4}{20} = \frac{1}{5}$

2 The probability of getting a card carrying a prime number = $\frac{8}{20} = \frac{2}{5}$

13 El-Menia

- 1 1 (b) 2 (b) 3 (c)
4 (d) 5 (a)

- 2 1 $X+5$ 2 4 3 12.5
4 3 5 20

3

- 1 $(X-5)(X+5)$
2 $a(b+1)+b+1=(b+1)(a+1)$
3 $(X+3)(X^2-3X+9)$
4 $X(X^2+X-12)=X(X+4)(X-3)$

4

$$\begin{aligned} \text{[a]} \quad \because x^2 &= 3x & \therefore x^2 - 3x &= 0 \\ & \therefore x(x-3) = 0 & \therefore x &= 0 \text{ or } x = 3 \end{aligned}$$

$$\text{[b]} \quad \frac{5^{2x} \times 5^{x-1}}{5^3 x} = 5^{2x+x-1-3} = 5^{-1} = \frac{1}{5}$$

5

$$\text{[a]} \quad \because \left(\frac{3}{2}\right)^{x-1} = \left(\frac{2}{3}\right)^3 \quad \therefore \left(\frac{3}{2}\right)^{x-1} = \left(\frac{3}{2}\right)^{-3}$$

$$\therefore x-1 = -3 \quad \therefore x = -2$$

$$\text{[b]} \quad \{3, 5\}$$

2 The probability of getting a number that is divisible by 5 = $\frac{1}{6}$

14

Assiut

$$\text{1} \quad \text{1} \text{ (c)} \quad \text{2} \text{ (b)} \quad \text{3} \text{ (a)}$$

$$\text{4} \text{ (d)} \quad \text{5} \text{ (b)}$$

$$\text{2} \quad \text{1} \text{ 1} \quad \text{2} \text{ 25} \quad \text{3} \text{ } \frac{1}{2}$$

$$\text{4} \text{ 10} \quad \text{5} \text{ 1}$$

3

$$\text{[a]} \quad \text{1} \quad (5x-y)(5x+y)$$

$$\text{2} \quad (x+6)(x^2-6x+36)$$

$$\text{[b]} \quad \because 3^x = 3^3 \quad \therefore x = 3 \quad (1)$$

$$\therefore 4^{x+y} = 1 \quad \therefore x+y = 0$$

$$\text{From (1): } \therefore 3+y = 0 \quad \therefore y = -3$$

4

$$\begin{aligned} \text{[a]} \quad \because x^2 - 1 &= 8 & \therefore x^2 &= 9 \\ & \therefore x = 3 \text{ or } x = -3 & \therefore \text{The S.S.} &= \{3, -3\} \end{aligned}$$

$$\text{[b]} \quad \frac{(2^2)^{x+1} \times (3^2)^{2-x}}{(2 \times 3)^{2x}} = \frac{2^{2x+2} \times 3^{4-2x}}{2^{2x} \times 3^{2x}}$$

$$= 2^{2x+2-2x} \times 3^{4-2x-2x}$$

$$= 2^2 \times 3^{4-4x} = 4 \times 3^{4-4x}$$

$$\text{At } x = 1$$

$$\therefore 4 \times 3^{4-4 \times 1} = 4 \times 3^{4-4} = 4 \times 1 = 4$$

5

$$\begin{aligned} \text{[a]} \quad a y + 5 y + 5 x + a x &= y(a+5) + x(5+a) \\ &= (a+5)(y+x) \end{aligned}$$

$$\begin{aligned} \text{[b]} \quad \text{1} \quad \text{The probability of selecting a white marble} \\ &= \frac{18}{50} = \frac{9}{25} \end{aligned}$$

$$\begin{aligned} \text{2} \quad \text{The probability of selecting a red marble} \\ &= \frac{12}{50} = \frac{6}{25} \end{aligned}$$

$$\begin{aligned} \text{3} \quad \text{The probability of selecting a yellow marble} \\ &= \frac{0}{50} = \text{zero} \end{aligned}$$

$$\begin{aligned} \text{4} \quad \text{The probability of selecting a non-red marble} \\ &= \frac{18+20}{50} = \frac{38}{50} = \frac{19}{25} \end{aligned}$$

15

Qena

$$\text{1} \quad \text{1} \text{ 81} \quad \text{2} \text{ 15} \quad \text{3} \text{ 1}$$

$$\text{4} \text{ 6} \quad \text{5} \text{ 8, 2 y}$$

$$\text{2} \quad \text{1} \text{ (d)} \quad \text{2} \text{ (c)} \quad \text{3} \text{ (c)}$$

$$\text{4} \text{ (b)} \quad \text{5} \text{ (c)}$$

3

$$\text{1} \quad (3x-2)(3x+2)$$

$$\text{2} \quad a(x-7) + 3(x-7) = (x-7)(a+3)$$

$$\text{3} \quad (x-1)(x^2+x+1)$$

4

$$\text{[a]} \quad \because x^2 + 8x + 15 = 0$$

$$\therefore (x+3)(x+5) = 0$$

$$\therefore x = -3 \text{ or } x = -5$$

$$\therefore \text{The S.S.} = \{-3, -5\}$$

$$\text{[b]} \quad \frac{x^2 \times x^5}{x^3} = x^{2+5-3} = x^4$$

5

$$\begin{aligned} \text{[a]} \quad \text{1} \quad \text{The probability of getting a card carrying} \\ \text{a prime number} &= \frac{6}{15} = \frac{2}{5} \end{aligned}$$

$$\begin{aligned} \text{2} \quad \text{The probability of getting a card carrying} \\ \text{a number divisible by 3} &= \frac{5}{15} = \frac{1}{3} \end{aligned}$$

$$\begin{aligned} \text{[b]} \quad \because 2^{x-2} &= 2^5 & \therefore x-2 &= 5 \\ & \therefore x &= 7 \end{aligned}$$

كيفية طباعة صفحات معينة من ملف معين

مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9



خطوة 1



خطوة 2
اختيار اسم
الطابعة
بتاعتك

خطوة 3
كتابة الصفحات
المراد طباعتها
نكتب رقم 4 ثم
نكتب الشرطة
دي - ثم نكتب 9

خطوة 4
اختيار نوع الورق



خطوة 5
اختيار A4



خطوة 6